
P R E F A C E.

THE very ample introduction, prefixed to the following collection of Mathematical Tables, has superceded the necessity of using many words here by way of preface, and has left me little more to mention than the necessity and occasion of this work, with some account of the contents and mode of execution.

The undertaking was occasioned by the extreme incorrectness of the 5th, or last, edition of Sherwin's once very useful book of tables. Finding, as well from the report of others, as from my own experience, that that edition (to say nothing of the very improper alteration in the form of the table of sines, tangents, and secants) was so very incorrectly printed, the errors being multiplied beyond all tolerable bounds, and no dependence to be placed on it for any thing of real practice, I was led to undertake the painful office of preparing a correct edition of another similar work. And I was lucky enough to meet with a bookseller of sufficient spirit to be at the great expence of printing the book, as well as to allow me what I demanded for my trouble in preparing it; which demand however, was nothing adequate to the great labour attending it,

of calculation used by the Astronomer Royal, and other persons the most experienced in these matters.

The improvements in the tables, by the introduction of new matter, are both great and numerous. The tables numbered 2, 3, and 4 are here added, being an entire new set, with their differences, for finding numbers and logarithms to twenty places. The columns of common differences, in the pages of natural sines &c, are now first introduced: As are also the tables of hyperbolic and logistic logarithms; the logarithmic sines and tangents for every second, in the first two degrees of the quadrant; together with a table of the lengths of arcs; a table to change common and hyperbolic logarithms from the one to the other; &c: the uses and exemplifications of the whole being very amply detailed.

But the greatest alteration of all, is the very extensive and new introduction here given, instead of the former inadequate and heterogeneous one, consisting of about 180 pages of new matter, on a methodical plan, containing the historical account and description of all trigonometrical writings, and the tables relating to that subject, both natural and logarithmic; besides the compleat use of our own tables. Inventions are here ascribed to the proper authors, and their methods and improvements described and compared. This historical description will evidently appear to be the result of immense labour and reading. And indeed I
have

have painfully gone over all the books which are here so minutely described ; and that description with a detail in some degree adequate to their great merits ; especially the works of Napier, Briggs, Kepler, &c; which was the more necessary, as the writings and methods of those great masters had not been any where properly described and discriminated, although they are in themselves highly curious and important.

These readings and commentaries have been carried on to an extent far beyond what was at first intended. But the tables having been in the press for the space of seven or eight years, I had thereby an opportunity of collecting and examining a still greater number of books ; so that I was gradually led on, and my views and plans rendered still more extensive and compleat. This delay, therefore, though in many respects it proved very inconvenient and disagreeable, has at length given the occasion of rendering these commentaries more perfect and satisfactory.

Besides what immediately relates to trigonometrical subjects, the reader will here find many other curious and uncommon articles, relating to the several authors and their discoveries, which have occurred in the course of my reading, and which appeared of too much consequence to be passed over unnoticed, in the analysis of their several compositions. Among these is the discovery of the first author of the binomial theorem, and the differential method, which are due to Mr. Henry Briggs, whose

A short abstract of the principal contents, may be as follows :

I. *In the Introduction.*

	Page		Page
History of trigonometrical tables		Halley's	103
before the invention of logarithms,		Shirley's	107
with the various methods of construction	1	Cotes's Logometria	109
On the word <i>sinus</i>	17	Taylor's construction	112
History of logarithms	20	Long's method	114
Nature of logarithms	21	Jones's	116
Invention of logarithms	23	Reid &c	118
Different sorts of logarithms	24	Dodson's Anti-log. canon	119
Construction of logarithms	41	Description and use of logarithmic tables	122
By Napier	41	Definition and notation	122
Kepler	48	Properties of logarithms	124
Briggs	60	Construction of logarithms	124
Briggs's Trigonometria Britan.	73	Description and use of logarithmic tables	126
Relation between logarithms and certain curves	81	Of our large table	126
Gregory's construction	84	Logarithmical arithmetic	131
Mercator's Logarithmo-technia	84	Of the table to 20 places	134
Gregory's Exercit. Geometricæ	94	Of the table to 6 places	139
Sir I. Newton's methods	99	Of the hyperbolic logarithms	143
		Of the logistic logarithms	144

Themselves.

Tab.		Tab.	
1. Logarithms from 1 to 100000	1	10. Natural and logarithmic	
2. Logarithms &c to 20 places	187	sines, tangents, secants, and	
3. Id. with differences	198	versed sines	248
4. Numbers to logarithms		11. Traverse table	338
places	201	12. Lengths of arcs	340
5. Logarithms to 61 places	204	13. Table to change common	
6. Id. with differences	208	and hyperbolic logarithms	
7. Hyperbolic logarithms	209	from one to the other	341
8. Logistic logarithms	213	14. Points of the compass	341
9. Sines and tangents to seconds	218	15. Errata in Gardiner's logarithms	342

ERRATA IN THE LOGARITHMS.

Page	Numb.	Log.
------	-------	------

34	- 23662	- 0515
----	---------	--------

34	- 23754	- 7368
----	---------	--------

38	- 25519	- 8637
----	---------	--------

38	- 25808	- 7544
----	---------	--------

44	- 28565	- 838
----	---------	-------

58 In the pro. parts, under the

dif. 121, for 63 read 61.

119 Ib. under 65, for 53 read 52.

INTRODUCTION.

I. OF TRIGONOMETRICAL TABLES, &c.

NCESSITY, the fruitful mother of most useful inventions, gave birth to the various numerical tables which compose the following work. Astronomy has been cultivated from the earliest ages. The progress of that science, requiring numerous arithmetical computations of the sides and angles of triangles, both plane and spherical, gave rise to trigonometry; for those frequent calculations suggested the necessity of performing them by the property of similar triangles; and for the ready application of this property, it was necessary that certain lines described and about circles, to a determinate radius, should be computed, and disposed in tables. Navigation, and the continually improving accuracy of astronomy, have also occasioned as perpetual an increase in the accuracy and extent of those tables. And this it is evident must ever be the case, the improvement of trigonometry uniformly following the improvement of those other useful sciences, for the sake of which it is more especially cultivated.

The ancient performed their trigonometry by means of the chords of arcs, which with the chords of their supplemental arcs, and the constant diameter, formed all species of right-angled triangles. Beginning with the radius, and the arc whose chord is equal to the radius, they divided them both into 60 equal parts, and estimated all other arcs and chords by those parts, namely all arcs by 60ths of that arc, and all chords by 60ths of its chord or the radius: At least this method is as old as the writings of Ptolemy, who used the sexagenary arithmetic for this division of chords and arcs, and for astronomical purposes.—And this by-the-by shews the reason why the whole circumference is divided into 360, or 6 times 60, equal parts or degrees, the whole circumference being equal to 6 times the first arc whose chord is equal to the radius: Unless perhaps we are to seek for the division of the circle in the number of days in the year; for thus, the ancient year consisting of 360 days, the sun or earth in each day described the 360th part of the orbit; and thence might arise the method of dividing every circle into 360 parts; and, radius being equal to the chord of 60 of those parts, the sexagesimal division both of the radius and of the parts might thence

B

arise.

which they received from the Greeks, introducing, among other things, the three or four theorems, or axioms, which we use at present as the foundation of our modern trigonometry.

The other great improvements that have been made in this branch, are due to the Europeans. These improvements they have gradually introduced since they received this science from the Arabians. And although these latter people had long used the Indian or decimal scale of arithmetic, it does not appear that they varied from the Greek or sexagesimal division of the radius, by which the chords and sines were expressed.

This alteration is said to have been first made by George Purbach, who was so called from his being a native of a place of that name between Austria and Bavaria. He was born in 1423, studied mathematics and astronomy at the university of Vienna, where he was afterwards professor of those sciences, though but for a short time, the learned world quickly suffering a great loss by his immature death, which happened in 1462, at the age of 39 years only. Purbach, besides enriching trigonometry and astronomy with several new tables, theorems, and observations, supposed the radius to be divided into 600000 equal parts, and computed the sines of the arcs, for every 10 minutes, in such equal parts of the radius, by the decimal notation.

This project of Purbach was completed by his disciple, companion, and successor John Muller, or Regiomontanus, who was so called from the place of his nativity, the little tower of Mons Regius, or Koningberg in Franconia, where he was born in the year 1436. Regiomontanus not only extended the sines to every minute, the radius being 600000, as designed by Purbach, but afterwards, disliking that scheme, as evidently imperfect, he computed them likewise to the radius 1000000, for every minute of the quadrant. He also introduced the tangents into trigonometry, the canon of which he called *fœcundus* because of the many and great advantages arising from them. Besides these he enriched trigonometry with many theorems and precepts. Through the benefit of all these improvements, except for the use of logarithms, the trigonometry of Regiomontanus is but little inferior to that of our own time. His treatise, on both plane and spherical trigonometry, is in 5 books; it was written about the year 1464, and printed in folio at Nuremburg in 1533. And in the 5th book are various problems concerning rectilinear triangles, some of which are resolved by means of algebra: a proof that this science was not wholly unknown in Europe before the treatise of Lucas de Burgo. Regiomontanus died in 1476 at the age of 40 years only, being then at Rome, whither he had been invited by the Pope, to assist in the reformation of the calendar, and was suspected to have been poisoned there by the sons of George Trebizonde, in revenge for the death of their father, which was said to have been caused by the grief he felt on account of the criticisms made by Regiomontanus on his translation of Ptolemy's *Almagest*.

Soon after this, several other mathematicians contributed to the improvement of trigonometry, by extending and enlarging the tables, though few of their works have been printed; and particularly John

arise. Trigonometry however must have been cultivated long before the time of Ptolemy; and indeed Theon, in his commentary on Ptolemy's *Almagest*, l. 1. ch. 9, mentions a work of the philosopher Hipparchus, written about a century and a half before Christ, consisting of 12 books on the chords of circular arcs; which must have been a treatise on trigonometry. And Menelaus also, in the first century of Christ, wrote 6 books concerning subtenses or chords of arcs. He used the word *nadir* (of an arc), which he defined to be the right line subtending the double of the arc; so that his nadir of an arc, was the double of our sine of the same arc; and therefore whatever he proves of the former, may be applied to the latter, substituting the double sine for the nadir.

The radius has since been decimally divided; but the sexagesimal divisions of the arc have continued in use to this day. Indeed our countrymen Briggs and Gellibrand, having a general dislike to all sexagesimal divisions, made an attempt at some reformation of this custom, by dividing the degrees of the arcs, in their tables, into centesims or hundredth parts, instead of minutes or 60th parts. The same was also recommended by Vieta and others; and a decimal division of the whole quadrant might perhaps soon have followed, had it not been for the tables of Vlacq, which came out a little after, to every 10 seconds, or 6th part of a minute.—But the compleat reformation would be, to express all arcs by their real lengths, namely in equal parts of the radius decimally divided: of which more in its proper place.

It is not to be doubted that many of the ancients wrote on the subject of trigonometry, as being a necessary part of astronomy; although few of their labours on that branch have come to our knowledge, and still fewer of the writings themselves have been handed down to us.

We are in possession of the 3 books of Menelaus on spherical trigonometry; but the 6 books are lost which he wrote on chords, being probably a treatise on the construction of trigonometrical tables.

The trigonometry of Menelaus was much improved by Ptolemy (Claudius Ptolemæus) the celebrated philosopher and mathematician. He was born at Pelusium, taught astronomy at Alexandria in Egypt, and died in the year of Christ 147, being the 78th year of his age. In the first book of his *Almagest*, Ptolemy delivers a table of arcs and chords, with the method of construction. This table contains 3 columns: in the 1st are the arcs to every half degree or 30 minutes; in the 2d are their chords, expressed in degrees, minutes and seconds, of which degrees the radius contains 60; and in the 3d column are the differences of the chords answering to 1 minute of the arcs, or the 30th part of the differences between the chords in the 2d column. In the construction of this table, among others, Ptolemy shews, for the first time that we know of, this property of any quadrilateral inscribed in a circle, namely that the rectangle under the two diagonals, is equal to the sum of the two rectangles under the opposite sides.

This method of computation, by the chords, continued in use till about the middle centuries after Christ; when it was changed for that of the sines, which were about that time introduced into trigonometry by the Arabians, who in other respects much improved this science, which

Werner of Nuremburg, who was born in 1468 and died in 1528, and who is said to have written five books on triangles.

About the year 1500, Nicholas Copernicus, the famous modern restorer of the true solar system, wrote a brief treatise on trigonometry both plane and spherical, with the description and construction of the canon of chords, or their halves, nearly in the manner of Ptolemy; to which is subjoined a canon of sines, with their differences, for every 10 minutes of the quadrant, to the radius 100000. This tract is inserted in the first book of his *Revoluciones Orbium Cœlestium*, first printed in folio at Nuremburg 1543. It is remarkable that he does not call these lines *sines*, but *semiffes subtensarum*, namely of the double arcs.—Copernicus was born at Thorn in 1473, and died in 1543.

In 1553 was published the *Canon Fœcundus*, or table of tangents, of Erasmus Reinhold, professor of mathematics in the academy of Wurttemberg. He was born at Salsfeldt in Upper Saxony, in the year 1511, and died in 1553.

To Franciscus Maurolycus, abbot of Messina in Sicily, we owe the introduction of the *Tabula Benefica*, or canon of secants, which came out about the same time, or a little before. But Lansbergius erroneously ascribes this to Rheticus. And the tangents and secants are both ascribed to Reinhold, by Briggs, in his *Mathematica ab antiquis minus cognita*, (pa. 30. Appendix to Ward's lives of the professors of Gresham college.)

Francis Vieta was born in 1540 at Fontenai, or Fontenai-le-Comte, in Lower Poitou, a province of France. He was master of requests at Paris, where he died in 1603, being the 63d. year of his age. Among other branches of learning in which he excelled, he was one of the most respectable mathematicians of the 16th century, or indeed of any age. His writings abound with marks of great originality, and the finest genius, as well as intense application. Among them are several pieces relating to trigonometry, which may be found in the collection of his works published at Leyden in 1646, by Francis Schooten, besides another large and separate volume in folio, published in the author's life time at Paris in 1579, containing trigonometrical tables with their construction and use; very elegantly printed, by the king's mathematical printer, with beautiful types and rules, the differences of the sines, tangents and secants, and some other parts, being printed with red ink, for the better distinction; but inaccurately executed, as he himself testifies in pa. 323 of his other works above-mentioned. The first part of this curious volume is intituled *Canon Mathematicus seu ad Triangula, cum Appendicibus*, and contains a great variety of tables useful in trigonometry. The first of these is what he more peculiarly calls *Canon Mathematicus, seu, ad Triangula*, which contains all the sines, tangents, and secants for every minute of the quadrant, to the radius 100,000, with all their differences; and towards the end of the quadrant the tangents and secants are extended to 8 or 9 places of figures. They are arranged like our tables at present, increasing on the left-hand side to 45 degrees, and then returning upwards by the right-hand side to 90 degrees; so that each number and its complement stand together on the same line. But here the canon of what we now call
tangents

tangents is denominated *fœcundus*, and that of the secants *fœcundissimus*. For the general idea prevailing in the form of these tables, is, not that the lines represented by the numbers are those which are drawn in and about a circle, as sines, tangents and secants, but the three sides of right-angled triangles; this being the way in which those lines had always been considered, and which still continued for some time longer. And therefore he considers the canon as a series of plane right-angled triangles, one side being constantly 100,000; or rather as three series of such triangles, for he makes a distinct series for each of the three varieties, namely, according as the hypotenuse or the base or the perpendicular is represented by the constant number 100,000, which is similar to the radius. Making each side constantly 100,000, the other two sides are computed to every magnitude of the acute angle at the base, from 1 minute up to 90 degrees or the whole quadrant. Each of the three series therefore consists of two parts, as representing the two variable sides of the triangle. When the hypotenuse is made the constant number 100,000, the two variable sides of the triangle are the perpendicular and base, or our sine and cosine; when the base is 100,000, the perpendicular and hypotenuse are the variable parts, forming the *canon fœcundus* & *fœcundissimus*, or our tangent and secant; and when the perpendicular is made the constant 100,000, the series contains the variable base and hypotenuse, or also *canon fœcundus* & *fœcundissimus*, or our cotangent and cosecant. Of course therefore the table consists of 6 columns, 2 for each of the 3 series, besides the two columns on the right and left for minutes, from 0 to 60 in each degree.

The second of these tables is similar to the first, but all in rational numbers, consisting, like it, of 3 series of 2 columns each, the radius, or constant side of the triangle, in each series, being 100,000, as before, and the other two sides *accurately* expressed in integers and rational vulgar fractions. So that we have here the canon of *accurate* sines, tangents and secants, or a series of about 4300 rational right-angled triangles. But then the several corresponding arcs of the quadrant, or angles of those triangles, are not expressed. Instead of them are inserted, in the first column next the margin, a series of numbers decreasing from the beginning to the end of the quadrant, which are called *numeri primi baseos*. It is from these numbers that Vieta constructs the sides of the 3 series of right-angled triangles, one side in each series being the constant number 100,000, as before. The theorems by which these series of rational triangles are computed from the *numeri primi baseos*, or marginal numbers, are inserted all in one page at the end of this 2d table, and in the modern notation they may be briefly expressed thus. Let p be the primary or marginal number on any line, and r the constant radius or number 100,000; then if r denote the hypotenuse of the right-angled triangle, the perpendicular and base, or the sine and cosine, will be respectively

$$\frac{p r}{\frac{1}{2} p^2 + 1} \text{ and } r - \frac{2 r}{\frac{1}{2} p^2 + 1}, \text{ (which last we may reduce to } \frac{\frac{1}{2} p^2 - 1}{\frac{1}{2} p^2 + 1} r);$$

when r denotes the base of the right-angled triangle, the perpendicular and

and hypotenuse, or the tangent and secant, are expressed by

$$\frac{p r}{\frac{1}{4} p^2 - 1} \text{ and } r + \frac{2 r}{\frac{1}{4} p^2 - 1}, \text{ (which last we may reduce to } \frac{\frac{1}{4} p^2 + 1}{\frac{1}{4} p^2 - 1} r);$$

and when r denotes the perpendicular of the right-angled triangle, the base and hypotenuse, or the cotangent and cosecant, are then expressed by

$$\frac{1}{4} p r - \frac{r}{p} \text{ (or } \frac{\frac{1}{4} p^2 - 1}{p} r) \text{ and } \frac{1}{4} p r + \frac{r}{p} \text{ (or } \frac{\frac{1}{4} p^2 + 1}{p} r).$$

So that Vieta's general values will be as we have here collected them together in the following expressions immediately under the words sine, cosine, &c; and just below Vieta's forms I have here placed the others to which they reduce and are equivalent, which are more contracted, but not so well adapted to the expeditious computation as Vieta's forms.

Sine	Cofine	Tangent	Secant	Cotangent	Cofecant
$\frac{p r}{\frac{1}{4} p^2 + 1}$	$r - \frac{2 r}{\frac{1}{4} p^2 + 1}$	$\frac{p r}{\frac{1}{4} p^2 - 1}$	$r + \frac{2 r}{\frac{1}{4} p^2 - 1}$	$\frac{1}{4} p r - \frac{r}{p}$	$\frac{1}{4} p r + \frac{r}{p}$
$\frac{p}{\frac{1}{4} p^2 + 1} r$	$\frac{\frac{1}{4} p^2 - 1}{\frac{1}{4} p^2 + 1} r$	$\frac{p}{\frac{1}{4} p^2 - 1} r$	$\frac{\frac{1}{4} p^2 + 1}{\frac{1}{4} p^2 - 1} r$	$\frac{\frac{1}{4} p^2 - 1}{p} r$	$\frac{\frac{1}{4} p^2 + 1}{p} r$

All these expressions it is evident are rational; and by assuming p of different values, from the first theorems Vieta computed the corresponding sides of the triangles, and so expressed them all in integers and rational fractions.

To the foregoing principal tables are subjoined several other smaller tables, or short specimens of large ones: as, a table of the sines, tangents and secants for every single degree of the quadrant, with the corresponding lengths of the arcs, the radius being 100,000,000; another table of the sines, tangents and secants, for each degree also, expressed in sexagesimal parts of the radius as far as the 3d order of parts; also two other tables for the multiplication and reduction of sexagesimal quantities.

The second part of this volume is intituled *Universalium Inspectionum ad Canonem Mathematicum Liber singularis*. It contains the construction of the tables, a compendious treatise on plane and spherical trigonometry, with the application of them to a great variety of curious subjects in geometry and mensuration, treated in a very learned manner; as also many curious observations concerning the quadrature of the circle, the duplication of the cube, &c. Computations are here given of the ratio of the diameter of a circle to the circumference, and of the length of the sine of 1 minute, both to many places of figures; by which he found that the sine of 1 minute is between 2,908,881,959

and 2,908,882,056; also

that, the diameter of a circle being 1000 &c, the perimeter of the inscribed and circumscribed polygon of 393216 sides, will be as follows,

perim.

perim. of the inscrib. polygon 314,159,265,35
 perim. of the circum. polygon 314,159,265,37
 and that therefore the circumference of the circle lies between those two numbers.

Although no author's name appears to the volume I have been describing, there can be no doubt of its being the performance of Vieta; for, besides bearing evident marks of his masterly hand, it is mentioned by himself in several parts of his other works collected by Schooten; and in the preface to those works by Elzevir the printer of them; as also in M. Montucla's *Histoire des Mathematiques*, which are the only notices I have ever seen or heard of concerning this book, the copies of which are so rare, that I never saw one besides that which is in my own possession, nor ever met with any other person at all acquainted with such a book.

In the other works of Vieta, published at Leyden in 1646 by Schooten, as mentioned above, there are several other pieces relating to trigonometry, some of which, on account of their originality and importance, are very deserving of particular notice in this place. And first, the very excellent theorems, here first of all given by our author, relating to angular sections, the geometrical demonstrations of which are supplied by that ingenious geometrician Alexander Anderson, a native of Aberdeen. We find here theorems for the chords (and consequently sines) of the sums and differences of arcs; and for the chords of arcs that are in arithmetical progression, namely, that the first or least chord is to the 2d, as any one after the first is to the sum of the two next less and greater, for example as the 2d to the sum of the 1st and 3d, and as the 3d to the sum of the 2d and 4th, and as the 4th to the sum of the 3d and 5th, &c; so that the 1st and 2d being given, all the rest are found from them by one subtraction and one proportion for each, in which the 1st and 2d terms are constantly the same: next are given theorems for the chords of any multiples of a given arc or angle, as also the chords of their supplements to a semicircle, which are similar to the sines and cosines of the multiples of given angles; and the conclusions from them are expressed in this manner: 1st that if c be the chord of the supplement of a given arc a , to the radius 1, then the chords of the supplements of the multiple arcs, will be as in the annexed table: where the author observes that the signs are alternately + and -; that the vertical columns of numeral coefficients to the terms of the chords, are the several orders of figurate numbers, which he calls triangular, pyramidal, triangulo-triangular, triangulo-pyramidal, &c. generated in the ordinary way by continual additions; not indeed from unity, AS IN THE GENERATION OF POWERS, but beginning with the number 2; and that the powers observe always the same progression: secondly, that if the chord of an arc a be called 1, and d the chord of the double arc $2a$, then

Arcs	Chords of the Supplements.				
1a	c				
2a	$c^2 - 2$				
3a	$c^3 - 3c$				
4a	$c^4 - 4c^2 + 2$				
5a	$c^5 - 5c^3 + 5c$				
6a	$c^6 - 6c^4 + 9c^2 - 2$				
7a	$c^7 - 7c^5 + 14c^3 - 7c$				
&c.	&c.				

the

HISTORY OF

the chords of the series of multiple arcs, will be as in this table; where the author remarks as before on the law of the powers, signs, and coefficients; these being the orders of figurate numbers, raised from unity by continual additions; *after the manner of the genesis of powers*; which generation in that way he speaks of as a thing generally known; but without giving any hint how the coefficients of the terms of any power may be found from one another only, and independent of those of any other power, as it was afterwards, and first of all I believe, done by Henry Briggs, about the year 1600: and 3dly, that if C be the chord of any arc a , to the radius 1; then the series of the chords and supplemental chords of the multiple arcs, will be thus; where the values are alternately chords and chords of the supplements of the arcs on the same line; and the law of the powers and coefficients as before; but every alternate couplet of lines having their signs changed.

Arcs	Chords.			
1a	1			
2a	d			
3a	d^2	—	1	
4a	d^3	—	$2d$	
5a	d^4	—	$3d^2$	+ 1
6a	d^5	—	$4d^3$	+ $3d$
7a	d^6	—	$5d^4$	+ $6d^2$ — 1
8a	d^7	—	$6d^5$	+ $10d^3$ — $4d$
&c.	&c.			

Arcs	Chords and Chords of Sup.			
1a	Chord	=	+ C	
2a	Sup. ch.	=	— C^2	+ 2
3a	Chord	=	— C^3	+ $3C$
4a	Sup. ch.	=	+ C^4	— $4C^2$ + 2
5a	Chord	=	+ C^5	— $5C^3$ + $5C$
6a	Sup. ch.	=	— C^6	+ $6C^4$ — $9C^2$ + 2
7a	Chord	=	— C^7	+ $7C^5$ — $14C^3$ + $7C$
&c.	&c.			

Another curious theorem is added to the above, for finding the sum of all these chords drawn in a semicircle, from one end of the diameter to every point in the circumference, those points dividing the circumference into any number of equal parts; namely as the least chord is to the diameter, so is the sum of the said least chord and diameter and greatest chord, to double the sum of all the chords including the diameter as one of them.

As the above theorems are chiefly adapted for the chords of multiple angles, a few problems and remarks are then added (whether by Vieta or Anderson does not clearly appear, but I think by the latter) concerning the application of them, to the section of angles into submultiples, and thence to the computation of the chords or sines, or a canon of triangles. The general precept for the angular sections is this; select one of the above equations adapted to the proper number of the section, in which will be concerned the powers of the unknown or required quantity, as high as the index of the section; and from this equation find that quantity by the known methods for the resolution of equations. Examples are given of three different sections, namely for 3, 5, and 7 equal parts, the forms for which are respectively these

$$\begin{aligned} 3C - C^3 &= g \\ 5C - 5C^3 + C^5 &= g \\ 7C - 14C^3 + C^5 - C^7 &= g \end{aligned}$$

where g is the chord of the given arc or angle, and C the required chord of the 3d, 5th, or 7th part of it. And it is shewn geometrically that
the

lines of a few principal arcs, as 30° , 36° , &c, in the first proposition by continual bisections, he finds the lines of various other arcs, down to 45 minutes. Then, in the 2d proposition, by the theorems for the sums and differences of arcs, he finds all the lines and cosines, up to 90 degrees, in a series of arcs differing by $1^\circ 30'$. And, in the 3d proposition, by the continual addition of $45'$, he obtains all the lines and cosines in the series whose common difference is $45'$. In the 4th proposition, beginning with $45'$, and continually bisecting, he finds the lines and cosines of the series of half arcs till he arrives at the arc of $14^{\text{viii}} 19^{\text{ix}}$, the line of which is found to be 1, and its cosine 9999999999999999. In the 5th proposition are computed the sine and cosine of $30''$ or half a minute. In the 6th and 7th propositions are computed the lines and cosines for every minute, from $1'$ to $45'$, as well as of many larger arcs. The 8th proposition extends the computation for single minutes much farther. In proposition 9 and 10 are computed the tangents and secants for all arcs in the series whose common difference is $45'$; and these are deduced from the lines of the same arcs by one proportion for each. In the remaining three propositions, 11, 12, 13, are computed the tangents and secants for several small angles. And from all these primary lines, tangents, and secants, the whole canon is deduced and completed.

The remaining books in this work, are by the editor Otho; namely, a treatise, in one book, on right-angled plane triangles, the cases of which are resolved by the tables; then right-angled spherical trigonometry in four books; next oblique spherical trigonometry in five books; and lastly several other books, containing various spherical problems.

Next after the above are placed the tables themselves, containing, for every 10 seconds, the lines, tangents and secants, with all the differences annexed to each, in a smaller character. The numbers however are not called lines, tangents, and secants, but, like Vieta's before described, they are considered as representing the sides of right-angled triangles, and titled accordingly. They are also in like manner divided into three series, namely, according as the radius, or constant side of the triangle, is made the hypotenuse, or the greater leg, or the less leg of the triangle. When the hypotenuse is made the constant radius 10000000000, the two columns of this case or series, are called the perpendicular and base, which are our sine and cosine; when the greater leg is the constant radius, the two columns of this series are titled hypotenuse and perpendicular, which are our secant and tangent; and when the less leg is constant, the two columns in this case are called hypotenuse and base; which are our cosecant and cotangent. After this large canon is printed another smaller table, which is said to be the two columns of the third series, or cosecants and cotangents, with their differences, but to 3 places of figures less, or to the radius 10000000. But I cannot discover the reason for adding this less table, even if it were correct, which is very far from being the case, the numbers being uniformly erroneous, and different from the former through the greatest part of the table.

Towards

Towards the close of the 16th century many persons wrote on the subject of trigonometry, and the construction of the triangular canon. But, their writings being seldom printed till many years afterwards, it is not easy to assign their order in respect of time. I shall therefore mention but a few of the principal authors, and that without pretending to any great precision on the score of chronological precedence.

In 1591 Philip Lansbergius first published his *Geometria Triangulorum* in four book, with the canon of sines, tangents, and secants; a brief but very elegant work; the whole being clearly explained: and it is perhaps the first set of tables titled with those words. The sines, tangents and secants of the arcs to 45 degrees, with those of their complements, are each placed in adjacent columns, in a very commodious manner, continued forwards and downwards to 45 degrees, and then returning backwards and upwards to 90 degrees: the radius is 10000000, and a specimen of the first page of the table is as follows:

o	Sinus		Tangens		Secants		
	o	10000000	o	Infinitum.	10000000	Infinitum.	
1	2909	9999999	2909	34377466738	10000000	34377468193	59
2	5818	9999998	5818	17188731915	10000002	17188734824	58
3	8727	9999996	8727	11459152994	10000004	11459157357	57
4	11636	9999993	11636	8594363048	10000007	8594368866	56
5	14544	9999989	14544	6875488693	10000011	6875495966	55
&c							&c
							189

Of this work, the first book treats of the magnitude and relations of such lines as are considered in and about the circle, as the chords, sines, tangents, and secants. In the second book is delivered the construction of the trigonometrical canon, by means of the properties laid down in the first book: After which follows the canon itself. And in the third and fourth books is shewn the application of the table, in the resolution of plane and spherical triangles——Lansberg, who was born in Zealand 1561, was many years a minister of the gospel, and died at Middleburg in 1632.

The trigonometry of Bartholomew Pitiscus was first published at Francfort in the year 1599. This is a very compleat work; containing, besides the triangular canon, with its construction and use in resolving triangles, the application of trigonometry to problems of surveying, altimetry, architecture, geography, dialling, and astronomy. The construction of the canon is very clearly described: And, in the third edition of the book in the year 1612, he boasts to have added, in this part, arithmetical rules for finding the chords of the 3d, 5th, and other uneven parts of an arc, from the chord of that arc being given; saying that it had been heretofore thought impossible to give such rules: But, after all, those boasted methods are only the application of the double rule of False-Position to the then known rules for finding the chords of multiple arcs; namely, making the supposition of some

number for the required chord of a submultiple of any given arc, then from this assumed number computing what will be the chord of its multiple arc, and which is to be compared with that of the given arc; then the same operation is performed with another supposition; and so on as in the double rule of position. The canon contains the sine, tangent, and secant for every minute of the quadrant, in some parts to 7 places of figures, in others to 8; as also the differences for every 10 seconds. The sines, tangents, and secants are also given for every 10 seconds in the first and last degree of the quadrant, for every 2 seconds in the first and last 10 minutes, and for every single second in the first and last minute. In this table the sines, tangents and secants are continued downwards on the left-hand pages as far as to 45 degrees, and then returned upwards on the right-hand pages, so that the complements are always on the same line in the opposite or facing pages.

The mathematical works of Christopher Clavius (a German jesuit, who was born at Bamberg in 1537) in five large folio volumes, were printed at Moguntia, or Metz, in 1612, the year in which the author died, at the age of 75. In the first volume we find a very ample and circumstantial treatise on trigonometry, with Regiomontanus's canon of sines for every minute, as also canons of tangents and secants, each in a separate table, to the radius 10000000, and in a form continued forwards all the way up to 90 degrees. The explanation of the construction of the tables, is very compleat, and is chiefly extracted from Ptolemy, Purbach, and Regiomontanus. The sines have the differences set down for each second, that is, the quotients arising from the differences of the sines divided by 60. About the year 1600 Ludolph van Collen, or à Ceulen, a respectable Dutch mathematician, wrote his book *de circulo & adscriptis*, in which he treats fully and ably of the properties of lines drawn in and about the circle, and especially of chords or subtenses, with the construction of the canon of sines. The geometrical properties from which these lines are computed, are the same as those used by former writers; but his mode of computing and expressing them, is different from theirs; for they actually extracted all the roots, &c, at every step, or single operation, in decimal numbers; but he retained the radical expressions to the last, making them however always as simple as possible: thus, for instance, he determines the sides of the polygons of 4, 8, 16, 32, &c, sides inscribed in the circle whose radius is 1, to be as in the table annexed:

where the point before any figure ($\sqrt{\cdot 2}$) signifies the root of all that follows it; so the last line is in our notation the same as $\sqrt{2} - \sqrt{2} + \sqrt{2} - \sqrt{2}$. And as the perfect management of such

No. of sides	Length of each side.
4	$\sqrt{2}$
8	$\sqrt{\cdot 2} - \sqrt{2}$
16	$\sqrt{\cdot 2} - \sqrt{\cdot 2} + \sqrt{2}$
32	$\sqrt{\cdot 2} - \sqrt{\cdot 2} + \sqrt{\cdot 2} - \sqrt{2}$
&c	&c

surds was then not generally known, he added a very neat tract on that subject, to facilitate the computations. These, together with other dissertations on similar geometrical matters, were translated from
the

the Dutch language into Latin by Willebrord Snell, and published at (Lugd. Batav.) Leyden in 1619. It was in this work that Ludolph determined the ratio of the diameter to the circumference of the circle to 36 figures, shewing that, if the diameter be 1, the circumference will be

greater than $3.14159,26535,89793,23846,26433,83279,50288,$

but less than $3.14159,26535,89793,23846,26433,83279,50289;$ which ratio was by his order, in imitation of Archimedes, engraven on his tomb-stone, as is witnessed by the said Snell, pa. 54, 55, *Cyclometricus*, published at Leyden two years after, in which he treats the same subject in a similar manner, recomputing and verifying Ludolph's numbers. And in the same book he also gives a variety of geometrical approximations, or mechanical solutions, to determine very nearly the lengths of arcs, and the areas of sectors and segments of circles.

Besides the *Cyclometricus*, and another geometrical work (*Apollonius Battavus*) published in 1608; the same Snellius wrote also four others *doctrinæ triangulorum canonicæ*, in which are contained the canon of secants, and in which the construction of sines, tangents and secants, together with the dimension or calculation of triangles, both plane and spherical, are briefly and clearly treated. After the author's death this work was published in 8vo, at Leyden 1627, by Martinus Hortensius, who added to it a tract on surveying and spherical problems. Willebrord Snell was born in 1591 at Royen, and died in 1627, being only 35 years of age. He was professor of mathematics in the university of Leyden, as was also his father Rodolph Snell.

Also in 1627, Francis van Schooten published at Amsterdam, in a small neat form, tables of sines, tangents and secants for every minute of the quadrant, to 7 places of figures, the radius being 10000000; together with their use in the trigonometry of plane triangles. These tables have a great character for their accuracy, being declared by the author to be without one single error. This however must not be understood of the last figure of the numbers, which I find to be very often erroneous, sometimes in excess and sometimes in defect, by not being always set down to the nearest unit. Schooten died in 1659, while the second volume of his second edition of Descartes' geometry was in the press. He was also author of several other valuable works in geometry and other branches of the mathematics.

The foregoing are the principal writers on the tables of sines, tangents and secants, before the invention of logarithms, which happened about this time, namely, soon after the year 1600. Tables of the natural numbers were now all compleated, and the methods of computing them nearly perfected: And therefore, before entering on the discovery and construction of logarithms, I shall stop here awhile to give a summary of the manner in which the said natural sines, tangents and secants were actually computed, after having been gradually improved from Hipparchus, Menelaus, and Ptolemy, who used only the chords, down to the beginning of the 17th century, when sines, tangents, secants and versed sines were in use, and when the method hitherto employed had received its utmost improvement.

In

In this explanation I shall here first enumerate the theorems by which the calculations were made, and then describe the application of them to the computation itself.

Theorem 1. The square of the diameter of a circle, is equal to the sum of the squares of the chord of an arc and of the chord of its supplement to a semicircle.

2. The rectangle under the two diagonals of any quadrilateral inscribed in a circle, is equal to the sum of the two rectangles under the opposite sides.

3. The sum of the squares of the sine and cosine (hitherto called the sine of the complement), is equal to the square of the radius.

4. The difference between the sines of two arcs that are equally distant from 60 degrees, or $\frac{1}{6}$ of the whole circumference, the one as much greater as the other is less, is equal to the sine of half the difference of those arcs, or of the difference between either arc and the said arc of 60 degrees.

5. The sum of the cosine and versed sine is equal to the radius.

6. The sum of the squares of the sine and versed sine, is equal to the square of the chord, or to the square of double the sine of half the arc.

7. The sine is a mean proportional between half the radius and the versed sine of double the arc.

8. A mean proportional between the versed sine and half the radius, is equal to the sine of half the arc.

9. As radius is to the sine, so is twice the cosine to the sine of twice the arc.

10. As the chord of an arc is to the sum of the chords of the single and double arc, so is the difference of those chords to the chord of thrice the arc.

11. As the chord of an arc is to the sum of the chords of twice and thrice the arc, so is the difference of those chords to the chord of five times the arcs.

12. And in general, as the chord of an arc is to the sum of the chords of n times and $n + 1$ times the arc, so is the difference of those chords to the chord of $2n + 1$ times the arc.

13. The sine of the sum of two arcs, is equal to the sum of the products of the sine of each multiplied by the cosine of the other and divided by the radius.

14. The sine of the difference of two arcs, is equal to the difference of the said two products divided by radius.

15. The cosine of the sum of two arcs, is equal to the difference between the products of their sines and of their cosines divided by radius.

16. The cosine of the difference of two arcs, is equal to the sum of the said products divided by radius.

17. A small arc is equal to its chord or sine, nearly.

18. As cosine is to sine, so is radius to tangent.

19. Radius is a mean proportional between the tangent and cotangent.

20. Half

20. Half the difference between the tangent and cotangent of an arc, is equal to the tangent of the difference between the arc and its complement. Or, the sum arising from the addition of double the tangent of an arc with the tangent of half its complement, is equal to the tangent of the sum of that arc and the said half complement.

21. The square of the secant of an arc, is equal to the sum of the squares of the radius and tangent.

22. Radius is a mean proportional between the secant and cosine. Or, as cosine is to radius, so is radius to secant.

23. Radius is a mean proportional between the sine and cosecant.

24. The secant of an arc, is equal to the sum of its tangent and the tangent of half its complement. Or, the secant of the difference between an arc and its complement, is equal to the tangent of the said difference added to the tangent of the less arc.

25. The secant of an arc, is equal to the difference between the tangent of that arc and the tangent of the arc added to half its complement. Or, the secant of the difference between an arc and its complement, is equal to the difference between the tangent of the said difference and the tangent of the greater arc.

From some of these 25 theorems, extracted from the writers before mentioned, and a few propositions of Euclid's elements, they compiled the whole table of sines, tangents, and secants, nearly in the following manner.

By the elements were computed the sides of a few of the regular figures inscribed in a circle, which were the chords of such parts of the whole circumference as are expressed by the number of sides, and therefore the halves of those chords the sines of the halves of the arcs. So, if the radius be 10000000, the sides of the following figures will give the annexed chords and sines.

The figure	Arç sub- tended	Its chord, or side	Half arc	Its sine, or $\frac{1}{2}$ chord
Triangle	120°	17320508	60°	8660254
Square	90	14142136	45	7071068
Pentagon	72	11755705	36	5877853
Hexagon	60	10000000	30	5000000
Decagon	36	6180340	18	3090170
Quindecagon	24	4158234	12	2079117

Of some, or all of these, the sines of the halves were continually taken, by theorem the 6th, 7th, or 8th, and of their complements by the 3d; then the sines of the halves of these, and of their complements, by the same theorems; and so on alternately of the halves and complements, till we arrive at an arc which is nearly equal to its sine. Thus, beginning with the above arc of 12 degrees, and its sine, we obtain the halves as follows:

The

The halves	Their fines	The comp. of these	Sines	The halves	Sines
6°	1	1045285		33°	5446390
3		523360		16 30	2840153
1 30		261769		8 15	1434926
45		130896		27 45	4656145
The comp. of these		The halves of these		Comps.	
84	9945218	24	4067366	57	8386706
87	9986295	34 30	5661062	73 30	9588197
88 30	9996573	17 15	2965416	81 45	9896514
89 15	9999143	39 45	6394390	62 15	8849876
The halves of these		23 15	3947439	Halves	
42	6691306	The comp.		28 30	4771588
21	3583679	66	9135455	14 15	2461533
10 30	1822355	55 30	8241262	36 45	5983246
5 15	915016	72 45	9550199	Comps.	
43 30	6883545	50 15	7688418	61 30	8788171
21 45	3705574	66 45	9187912	75 45	9692309
44 15	6977905			53 15	8012538
				Half	
				30 45	5112931
				Comp.	
				59 15	8594064

The fines of small arcs are then deduced in this manner. From the fine of 45' above determined, are found the halves, which will be thus:

45'	6''	.	.	.	.	.	130896
22	30	.	.	.	.	.	65449,4
11	15	.	.	.	.	.	32724,8

Now these last two fines being evidently in the same ratio as their arcs, the fines of all the less single minutes will be found by single proportion. So the 45th part of the fine of 45', gives 2909 for the fine of 1'; which may be doubled, tripled, &c, for the fines of 2', 3', &c, up to 45'.

Then, from all the foregoing primary fines, by the theorems for halving, doubling, or tripling, and by those for the sums and differences, the rest of the fines are deduced, to compleat the quadrant.

But having thus determined the fines and cosines of the first 30° of the quadrant, that is the fines of the first and last 30°, those of the intermediate 30° arc, by theor. 4, found by one single subtraction for each fine.

The fines of the whole quadrant being thus compleated, the tangents are found by theor. 18, 19, 20, namely for one half of the quadrant by the 18th and 19th, and the other half, by one single addition or subtraction for each, by the 20th theorem.

And lastly, by theor. 24 and 25, the secants are deduced from the tangents by addition and subtraction only.

Among the various means used for constructing the canon of fines, tangents and secants, the writers above enumerated seem not to have been possessed of the method of differences, so profitably used since, and first of all I believe by Briggs, in computing his trigonometrical canon

Canon and his logarithms, as we shall see hereafter when we come to describe those works. They took however the successive differences of the numbers after they were computed, to verify or prove the truth of them; and if found erroneous, by any irregularity in the last differences, from thence they had a method of correcting the original numbers themselves. At least this method is used by Pitiscus, *Trig. lib. 2*, where the differences are extended to the third order.—In pa. 44, of the same book also is described, for the first time that I know of, the common notation of decimal fractions as now used. And this same notation was afterwards described and used by baron Neper in *positio 4* and 5 of his posthumous work on the construction of logarithms, published by his son in the year 1619. But the decimal fractions themselves may be considered as having been introduced by Regiomontanus, by his decimal division of the radius &c. of the circle; and from that time gradually brought into use; but continued long to be denoted after the manner of vulgar fractions, by a line drawn between the numerator and denominator, which last however was soon omitted, and only the numerator set down with the line below it; thus it was first $31\frac{35}{100}$, the $31\frac{35}{100}$; afterwards omitting the line it became 31^{35} , and lastly 31_{35} or 31.35 or $31'35$: As may be traced in the works of Vieta and others since his time, gradually into the present century.

Having often heard it remarked that the word *sine*, or in Latin and French *sinus*, is of doubtful origin; and as the various accounts which I have seen of its derivation, are very different from one another, it may not be amiss here to employ a few lines on this matter. Some authors say this is an Arabic word, others that it is the single Latin word *sinus*, and in Montucla's *Histoire des Mathematiques*, it is conjectured to be an abbreviation of two Latin words. The conjecture is thus expressed by the ingenious and learned author of that excellent history, at pa. xxxiii among the additions and corrections of the first volume: "A l'occasion des sinus dont on parle dans cette page, come d'une invention des Arabes, voici une étymologie de ce nom, tout a-fait heureuse & vraisemblable. Je la dois à M. Godin, de l'Académie Royale des Sciences, Directeur de l'Ecole de Marine de Cadix. Les sinus sont, comme l'on sçait, des moitiés de cords; & les cordes en Latin se nomment *inscriptæ*. Les sinus sont donc *semiffes inscriptarum*, ce que probablement on écrivit ainsi pour abréger, S. Ins. Delà ensuite s'est fait par abus le mot de sinus." Now ingenious as this conjecture is, there appears to be little or no probability for the truth of it. For, in the first place, it is not in the least supported by quotations from any of the more early books to shew that it ever was the practice to write or print the words thus S. Ins. upon which the conjecture is founded. Again, it is said the chords are called in Latin *inscriptæ*; and it is true that they sometimes are so; but I think they are more frequently called *subtensæ*, and the sines *semiffes subtensarum* of the double arcs, which will not abbreviate into the word *sinus*. But it may be said, what reason have we to suppose this word to be either a Latin word, or the abbreviation of any Latin words whatever? that it seems but proper to seek for the etymology of words in the language

of the inventors of the *things*. For which reason it is, that we find the two other words, *tangens* and *secans*, are Latin, as they were invented and used by authors who wrote in that language. But the *sinus* are acknowledged to have been invented and introduced by the Arabians, and thence by analogy it would seem probable that this is a word of *their* language, and from them adopted, together with the use of it, by the Europeans. And indeed Lansbergius, in the 2d pa. of his trigonometry above-mentioned, expressly says that it is Arabic: His words are, *Vox sinus Arabica est, et proinde barbara; sed cum longo usu approbata sit, & commodior non suppetat, nequaquam repudienda est: faciles enim in verbis nos esse oportet, cum de rebus convenit.* And Vieta says something to the same purport in pa. 9 of his *Universalium Inspectionum ad Canonem Mathematicum Liber*: His words are, *Breve sinus vocabulum, cum sit artis, Saracenis præsertim quàm familiare, non est ab artificibus explodendum, ad laterum semissimum inscriptorum denotationem, &c.*

Guarinus also is of the same opinion: in his *Euclides Adæutus &c. tract.* xx, pa. 307. he says, *SINUS vero est nomen Arabicum usurpatum in hanc significationem a mathematicis*; although he was aware that a Latin origin was ascribed to it by Vitalis, for he immediately adds, *Licet Vitalis in suo Lexico Mathematico ex eo velit sinum appellatum, quòd claudat curvitatem arcus.*

Long before I either saw or heard of any conjecture or observation concerning the etymology of the word *sinus*, I remember that I imagined it to be taken from the same Latin word, signifying breast or bosom, and that our *sinus* was so called allegorically. I had observed that several of the terms in trigonometry were derived from a bow to shoot with, and its appendages; as *arcus* the bow, *chorda* the string, and *sagitta* the arrow, by which name the versed sine, which represents it, was sometimes called; also that the *tangens* was so called from its office, being a line *touching* the circle, and *secans* from its *cutting* the same; I therefore imagined that the *sinus* was so called, either from its resemblance to the breast or bosom, or from its being a line drawn within the bosom (*sinus*) of the arc, or from its being that part of the string (*chorda*) of a bow (*arcus*) which is drawn near the breast (*sinus*) in the act of shooting. And perhaps Vitalis's definition above-quoted has some allusion to the same similitude.

Also Vieta seems to allude to the same thing in calling *sinus* an allegorical word, in pa. 417 of his works as published by Schooten, where, with his usual judgment and precision, he treats of the propriety of the terms used in trigonometry for certain lines drawn in and about the circle, of which, as it very well deserves, I shall here extract the principal part, to shew the opinion and arguments of so great a man on those names. “Arabes autem semisses inscriptas duplo, numeris præsertim æstimatas, vocaverunt allegorice SINUS, atque ideo ipsam semidiametrum, quæ maxima est semissimum inscriptarum, SINUM TOTUM. Et de iis sua methodo canones exataverunt qui circumferuntur, supputante præsertim Regiomontano bene juste & accurate, in iis etiam particulis qualium semidiameter adsumitur 10,000,000.

“ Ex

“ Ex canonibus deinde sinuum derivaverunt recentiores canonem semissium circumscriptarum, quem dixere Fœcundum; & canonem educarum è centro, quem dixere Fœcundissimum & Beneficum, hypotenusis additum. Atque adeo semisses circumscriptas, numeris præsertim æstimatas, vocaverunt Fœcundos Sinus numerosive videlicet; quanquam nihil vetat Fœcundi nomen substantivè accipi. Hypotenusas autem Beneficas, vel etiam simpliciter Hypotenusas: quoniam hypotenusa in prima serie sinus totius nomen retinet. Itaque ne novitate verborum res adûmbretur, & alioqui sua artificibus eo nomine debita præripiatur gloria, præposita in Canone Mathematico canonicis numeris inscriptio, candide admonet primam seriem esse Canonem Sinum. In secunda vero, partem canonis fœcundi, partem canonis fœcundissimi, contineri. In tertia, reliquam.

Sane præter inscriptas & circumscriptas, circulum etiam adficiunt aliæ lineæ rectæ, velut Incidentes, Tangentes, & Secantes. Verum illæ voces substantivæ sunt, non peripheriarum relativæ. Ac secare quidem circulum linea recta tunc intelligitur, cum in duobus punctis secat. Itaque non loquuntur bene geometrice, qui educas è centro ad metas circumscriptarum vocant secantes improprie, cum secantes, & tangentes ad certos angulos vel peripherias referunt. Immo vero artem confundunt, cum his vocibus necesse habeat uti geometra abs relatione.

“ Quare si quibus arrideat Arabum metaphora; quæ quidem aut omnino retinenda videtur, aut omnino explodenda; ut semisses inscriptas, Arabes vocant sinus; sic semisses circumscriptæ, vocentur Prosinus Amsinusve; & educæ è centro, Transsinuosæ. Sin allegoria displiceat, geometrica sane inscriptarum & circumscriptarum nomina retineantur. Et cum educæ è centro ad metas circumscriptarum, non habeant hætenus nomen certum neque elegans, voceantur sane profemidiametri, quasi protensa semidiametri, se habentes ad suas circumscriptas, sicut semidiametri ad inscriptas.”

Against the Arabic origine however of this word (*sinus*) may be urged its being varied according to the fourth declension of Latin nouns, like *manus*; and that if it were an Arabic word latinized, it would have been ranked under either the first, second, or third declension, as is usual in such adopted words.

So that, upon the whole, it will perhaps rather seem probable, that the term *sinus* is the Latin word answering to the name by which the Saracens called that line, and not their word itself. And this conjecture seems to be rendered still more probable by some expressions in pa. 4 and 5 of Otho's preface to Rheticus's Canon, where it is not only said, that the Saracens called the half chord of double the arc *sinus*, but also that they called the part of the radius lying between the sine and the arc *sinus versus vel sagitta*, which are evidently Latin words, and seem to be intended for the Latin translations of the names by which the Arabians called these lines, or the numbers expressing the lengths of them.

O F L O G A R I T H M S.

THE trigonometrical canon of natural sines, tangents and secants, being now brought to a considerable degree of perfection; the great length and accuracy of the numbers, together with the increasing delicacy and number of astronomical problems and spherical triangles, to the resolution of which the canon was applied, urged many persons, conversant in those matters, to endeavour to discover some means of diminishing the great labour and time, requisite for so many multiplications and divisions, in such large numbers as the tables then consisted of. And their chief aim was, to reduce the multiplications and divisions to additions and subtractions, as much as possible.

For this purpose, Nicholas Raymer Ursus Dithmarsus invented an ingenious method, which serves for one case in the sines, namely, when radius is the first term in the proportion, and the sines of two arcs are the second and third terms; for he shewed that the fourth term or sine, would be found by only taking half the sum or difference of the sines of two other arcs, which should be the sum and difference of the less of the two former given arcs and the complement of the greater. This is no more in effect than the following well-known theorem in trigonometry: As half radius is to the sine of one arc, so is the sine of another arc to the cosine of the difference *minus* the cosine of the sum of the said arcs. The author published this ingenious device in 1588, in his *Fundamentum Astronomiæ*. And three or four years afterwards it was greatly improved by Clavius, who adapted it to all proportions in the resolution of spherical triangles, both for sines, tangents, secants, versed sines, &c; and that whether radius be in the proportion or not. All which he explains very fully in *lcm.* 53 *lib.* 1. of his treatise on the *Astronomie*. This method, although ingenious, depends not on any abstract property of numbers, but only on the relations of certain lines drawn in and about the circle, and it was therefore rather limited, and sometimes attended with trouble in the application.

After perhaps various other contrivances, incessant endeavours at length produced the happy invention of logarithms, which are of direct and universal application to all numbers abstractedly considered, being derived from a property inherent in themselves. This property may be considered, either as the relation between a geometrical series of terms and a corresponding arithmetical one, or as the relation between ratios and the measures of ratios, which comes to much the same thing, they having been conceived in one of these ways by some of the writers on this subject, and in the other by the rest of them, as well as in both ways at different times by the same writer. A summary idea of this property, and of the probable reflections made on it by the first writers on logarithms, may be to the following effect.

The learned calculators, about the close of the 16th, and beginning of the 17th century, finding the operations of multiplication and division by very long numbers of 7 or 8 places of figures, which they
had

had frequently occasion to perform in solving problems relating to geography and astronomy, to be exceedingly troublesome, set themselves to consider whether it was not possible to find some method of lessening this labour, by substituting other easier operations in their stead. In pursuit of this object they reflected that, since in every multiplication by a whole number, the ratio, or proportion, of the product to the multiplicand, is the same as the ratio of the multiplier to unity, it will follow that the ratio of the product to unity (which, according to Euclid's definition of compound ratios, is compounded of the ratios of the said product to the multiplicand and of the multiplier to unity), must be equal to the sum of the two ratios of the multiplier to unity and of the multiplicand to unity. Consequently, if they could find a set of artificial numbers that should be the representatives of, or should be proportional to, the ratios of all sorts of numbers to unity, the addition of the two artificial numbers that should represent the ratios of any multiplier and multiplicand to unity, would answer to the multiplication of the said multiplicand by the said multiplier, or the sum arising from the addition of the said representative numbers, would be the representative number of the ratio of the product to unity; and consequently the natural number to which it should be found, in the table of the said artificial or representative numbers, that the said sum belonged, would be the product of the said multiplicand and multiplier. Having settled this principle as the foundation of their wished-for method of abridging the labour of calculations, they resolved to compose a table of such artificial numbers, or numbers that should be representatives of, or proportional to, the ratios of all the common or natural numbers to unity.

The first observation that naturally occurred to them in the pursuit of this scheme, was that, whatever artificial numbers should be chosen to represent the ratios of other whole numbers to unity, the ratio of equality, or of unity to unity, must be represented by 0; because *that* ratio has properly no magnitude, since, when it is added to, or subtracted from, any other ratio, it neither increases nor diminishes it.

The second observation that occurred to them was, that any number whatever might be chosen at pleasure for the representative of the ratio of any given natural number to unity; but that, when once such choice was made, all the other representative numbers would be thereby determined, because they must be greater or less than that first representative number, in the same proportions in which the ratios represented by them, or the ratios of the corresponding natural numbers to unity, were greater or less than the ratio of the said given natural number to unity. Thus, either 1, or 2, or 3, &c, might be chosen for the representative of the ratio of 10 to 1. But, if 1 be chosen for it, the representatives of the ratios of 100 to 1 and 1000 to 1, which are double and triple of the ratio of 10 to 1, must be 2 and 3, and cannot be any other numbers; and, if 2 be chosen for it, the representatives of the ratios of 100 to 1 and 1000 to 1 will be 4 and 6, and cannot be any other numbers; and, if 3 be chosen for it, the representatives of
the

the ratios of 100 to 1 and 1000 to 1 will be 6 and 9, and cannot be any other numbers; and so on.

The third observation that occurred to them was, that, as these artificial numbers were representatives of, or proportional to, ratios of the natural numbers to unity, they must be expressions of the numbers of some smaller equal ratios that are contained in the said ratios. Thus, if 1 be taken for the representative of the ratio of 10 to 1, then 3, which is the representative of the ratio of 1000 to 1, will express the number of ratios of 10 to 1 that are contained in the ratio of 1000 to 1. And if, instead of 1, we make 10,000,000, or ten millions, the representative of the ratio of 10 to 1, (in which case 1 will be the representative of a very small ratio, or *ratiuncula*, which is only the ten-millionth part of the ratio of 10 to 1, or will be the representative of the 10,000,000th root of 10, or of the first or smallest of 9,999,999 mean proportionals interposed between 1 and 10), the representative of the ratio of 1000 to 1, which will in this case be 30,000,000, will express the number of those *ratiunculae*, or small ratios of the 10,000,000th root of 10 to 1, which are contained in the said ratio of 1000 to 1. And the like may be shewn of the representative of the ratio of any other number to unity. And therefore they thought these artificial numbers, which thus represent, or are proportional to, the magnitudes of the ratios of the natural numbers to unity, might not improperly be called the LOGARITHMS of those ratios, since they express the numbers of smaller ratios of which they are composed. And then, for the sake of brevity, they called them the *Logarithms of the said natural numbers themselves*, which are the antecedents of the said ratios to unity, of which they are in truth the representatives.

The foregoing method of considering this property, leads to much the same conclusions as the other way, in which the relations between a geometrical series of terms, and their exponents, or the terms of an arithmetical series, are contemplated. In this latter way, it readily occurred that the addition of the terms of the arithmetical series corresponded to the multiplication of the terms of the geometrical series; and that the arithmeticals would therefore form a set of artificial numbers, which, when arranged in tables with their geometricals, would answer the purposes desired, as has been explained above.

From this property, by assuming four quantities, two of them as two terms in a geometrical series, and the others as the two corresponding terms of the arithmeticals, or artificials, or logarithms, it is evident that all the other terms of both the two series may thence be generated. And therefore there may be as many sets or scales of logarithms as we please, since they depend intirely on the arbitrary assumption of the first two arithmeticals. And all possible natural numbers may be supposed to coincide with some of the terms of any geometrical progression whatever, the logarithms or arithmeticals determining which of the terms in that progression they are.

It was proper however that the arithmetical series should be so assumed, as that the term 0 in it might answer to the term 1 in the geometricals; otherwise the sum of the logarithms of any two numbers would

would be always to be diminished by the logarithm of 1, to give the logarithm of the product of those numbers : for which reason, making 0 the logarithm of 1, and assuming any quantity whatever for the value of the logarithm of any one number, the logarithms of all other numbers were thence to be derived. And hence, like as the multiplication of two numbers is effected by barely adding their logarithms, so division is performed by subtracting the logarithm of the one from that of the other, raising of powers by multiplying the logarithm of the given number by the index of the power, and extraction of roots by dividing the logarithm by the index of the root. It is also evident that, in all scales or systems of logarithms, the logarithm of 0 will be infinite ; namely, infinitely negative if the logarithms increase with the natural numbers, but infinitely positive if the contrary ; because that while the geometrical series must decrease through infinite divisions by the ratio of the progression, before the quotient come to 0 or nothing ; the logarithms, or arithmeticals, will in like manner undergo the corresponding infinite subtractions or additions of the common equal difference ; which equal increase or decrease, thus indefinitely continued, must needs tend to an infinite result.

This however was no newly discovered property of numbers, but what was always well known to all mathematicians, being treated of in the writings of Euclid, as also by Archimedes, who made great use of it in his *Arenarius*, or treatise on the number of the sands, namely, in assigning the rank or place of those terms, of a geometrical series, produced from the multiplication together of any of the foregoing terms, by the addition of the corresponding terms of the arithmetical series, which served as the indices or exponents of the former. And the reason why tables of these numbers were not sooner composed, was, that the accuracy and trouble of trigonometrical computations had not sooner rendered them necessary. It is therefore not to be doubted that, about the close of the sixteenth and beginning of the seventeenth century, many persons had thoughts of such a table of numbers, besides the few who are said to have attempted it.

Longomontanus has, by some, been said to have invented logarithms : but this cannot well be supposed to have been much more than in idea, since he never published any thing of the kind, nor ever laid claim to the invention, though he lived thirty-three years after they were first published by baron Neper, as he died only in 1647, when they had been long known and received all over Europe. Some circumstances of this matter are indeed related by Wood in his *Athenæ Oxonienses*, under the article Briggs, on the authority of Oughtred and Wingate, viz. “ That one Dr. Craig a Scotchman, coming out of Denmark into his own country, called upon Joh. Neper baron of Marcheston near Edenburgh, and told him among other discourses of a new invention in Denmark (by Longomontanus as 'tis said) to save the tedious multiplication and division in astronomical calculations. Neper being solicitous to know farther of him concerning this matter, he could give no other account of it, than that it was by proportion-
able

able numbers. Which hint Neper taking, he desired him at his return to call upon him again. Craig, after some weeks had passed, did so, and Neper then shewed him a rude draught of that he called, *Canon mirabilis Logarithmorum*. Which draught, with some alterations, he printing in 1614, it came forthwith into the hands of our author Briggs, and into those of Will. Oughtred, from whom the relation of this matter came."

Kepler also says that one Juste Byrge, assistant astronomer to the landgrave of Hesse, invented, or projected, logarithms long before Neper did, but that they had never come abroad on account of the great reservedness of their author with regard to his own compositions. Byrge is also said to have computed a table of natural sines for every two seconds of the quadrant.

But whatever may have been said or conjectured concerning any thing that may have been done by others, it is certain that the world is indebted, for the first publication of logarithms, to John Napier, or Nepair *, or in Latin, Neper, baron of Merchiston, or Markinston, in Scotland, who died the 3d of April 1618, at the age of 67 years. Baron Napier added considerable improvements to trigonometry, and the frequent numerical computations he performed in this branch, gave occasion to his invention of logarithms, in order to save part of the trouble attending those calculations; and for this reason he adapted his tables peculiarly to trigonometrical uses.

This discovery he published in 1614, in his book intituled *Mirifici Logarithmorum canonis descriptio*, reserving the construction of the numbers till the sense of the learned concerning his invention should be known. And, excepting the construction, this is a perfect work on

* The origine of which name Crawford informs us was from a (less) peerless action of one of his ancestors, viz. Donald, second son of the earl of Lenox in the time of David the second. "Some English writers, mistaking the import of the term *baron*, having called this celebrated person lord Napier, a scotch nobleman. He was not indeed a peer of Scotland; but the peerage of Scotland informs us, that he was of a very antient, honourable, and illustrious family; that his ancestors, for many generations, had been possessed of sundry baronies, and, amongst others, of the barony of Merchistoun, which descended to him by the death of his father in 1608. Mr. Briggs, therefore, very properly styles him *Baro Merchistonii*. Now, according to Skene, *de verbis significatio*. "In this realm (of Scotland) he is called an Barrone, quia habetis his landes immediatellie in chiefe of the king, and hes power of Pit and Gallows; *Possit et Tona*; quihilk was first institute and granted be king Malcolm, quia gave power to the Barrones to have ane Pit, quhairin women condemned for theft suld be drowned, and ane Gallows, whereupon men thieves and trespassowres, suld be hanged, conforme to the doome given in the Barron Court thereanent." So that a Scotch baron, though no peer, was nevertheless a very considerable personage, both in dignity and power." *Read's Essay on Logarithms*.—The name of the illustrious inventor of logarithms, and his family, has been variously written at different times, and on different occasions. In his own Latin works, and in (perhaps) all other books in Latin, it is *Neper*, or *Neperus Baro Merchistonii*: By Briggs, in a letter to Archbishop Usher, he is called *Naper*, *lord of Markinston*: In Wright's translation of the logarithms, which was revised by the author himself, and published in 1616, he is called *Nepair*, *baron of Merchiston*; and the same by Crawford and some others: But M'Kenzy and others write it *Napier*, *baron of Merchiston*; which, being also the orthography now used by the family, I shall adopt in this work. I observe also that the Scotch Compendium of Honour says he was only Sir John Napier, and that his son and heir, Archibald, was the first lord, being raised to that dignity in 1626. Be this however as it may, I shall conform to the common modes of expression, and call him indifferently *baron Napier* or *lord Napier*.
this

this kind of logarithms, containing in effect the logarithms of all numbers, and the logarithmic sines, tangents, and secants for every minute of the quadrant, together with the description and uses of the tables, as also his definition and idea of logarithms.

Napier explains his notion of logarithms by lines described or generated by the motion of points, in this manner: He first conceives a line to be generated by the equable motion of a point, which passes over equal portions of it in equal small moments or portions of time: he then considers another line as generated by the unequal motion of a point, in such manner, that, in the aforesaid equal moments or portions of time, there may be described or cut off, from a given line, parts which shall be continually in the same proportion with the respective remainders, of that line, which had before been left: then are the several lengths of the first line, the logarithms of the corresponding parts of the latter. Which description of them is similar to this, that the logarithms are a series of quantities or numbers in arithmetical progression, adopted to another series in geometrical progression. The first or whole length of the line, which is diminished in geometrical progression, he makes the radius of a circle, and its logarithm 0 or nothing, representing the beginning of the first or arithmetical line; and the several proportional remainders of the geometrical line, are the natural sines of all the other parts of the quadrant decreasing down to nothing, while the successive increasing values of the arithmetical line, are the corresponding logarithms of those decreasing sines. so that while the natural sines decrease from radius to nothing, their logarithms increase from nothing to infinite. Napier made the logarithm of radius to be 0, that he might save the trouble of adding and subtracting it in trigonometrical proportions, in which it so frequently occurred; and he made the logarithms of the sines, from the intire quadrant down to 0, to increase, that they might be positive, and so in his opinion the easier to manage, the sines being of more frequent use than the tangents and secants, of which the whole of the latter and half the former would, in his way, be of a different affection from the sines; for it is evident that the logarithms of all the secants in the quadrant, and of all the tangents above 45° , or the half quadrant, would be negative, being the logarithms of numbers greater than the radius, whose logarithm is made equal to 0 or nothing.

As to the contents of Napier's table; it consists of the natural sines and their logarithms, for every minute of the quadrant. Like most other tables, the arcs are continued to 45 degrees from top to bottom on the left-hand side of the pages, and then returned backwards from bottom to top on the right hand side of the pages: so that the arcs and their complements, with the sines, natural and logarithmic, stand on the same line of the page, in six columns; and in another column, in the middle of the page, are placed the differences between the logarithmic sines and cosines, on the same lines, and in the adjacent columns on the right and left; thus making in all seven columns in each page. Of these columns, the first and seventh contain the arc and its complement, in degrees and minutes; the second and sixth, the natural sine and cosine of each arc; the third and fifth, the logarithmic

fine and cosine; and the fourth, or middle column, the difference between the logarithmic fine and cosine which are in the third and fifth columns.

To elucidate the description, the first page of the table is here inserted.

Gr. min	o	Sinus	Logarithmi	+ | - Differentia	Logarithmi	Sinus	
0	0	Infinitum	Infinitum		0	10000000	60
1	2909	81425681	81425680		1	10000000	59
2	5818	74494213	74494211		2	99999998	58
3	8727	70439560	70439560		4	99999996	57
4	11636	67562746	67562739		7	99999993	56
5	14544	65331315	65331304		11	99999989	55
6	17453	63508099	63508083		16	99999984	54
7	20362	61966595	61966573		22	99999980	53
8	23271	60631284	60631256		28	99999974	52
9	26180	59453453	59453418		35	99999967	51
10	29088	58399857	58399814		43	99999959	50
11	31997	57446759	57446707		52	99999950	49
12	34906	56576646	56576584		61	99999940	48
13	37815	55776222	55776149		73	99999928	47
14	40724	55035148	55035064		84	99999917	46
15	43632	54345225	54345129		96	99999905	45
16	46541	53699843	53699734		109	99999892	44
17	49450	53093600	53093577		123	99999878	43
18	52359	52522019	52521881		138	99999863	42
19	55268	51981356	51981202		154	99999847	41
20	58177	51468431	51468361		170	99999831	40
21	61086	50980537	50980450		187	99999813	39
22	63995	50515342	50515137		205	99999795	38
23	66904	50070827	50070603		224	99999776	37
24	69813	49645239	49644995		244	99999756	36
25	72721	49237030	49236765		265	99999736	35
26	75630	48844826	48844539		287	99999714	34
27	78539	48467431	48467122		309	99999692	33
28	81448	48103763	48103431		332	99999668	32
29	84357	47752859	47752503		356	99999643	31
30	87265	47413852	47413471		381	99999619	30

min

Gr. o

Besides the columns which are actually contained in this table, as above exhibited and described, namely, the natural and logarithmic fines, and the differences of these, the same table is made to serve also for the logarithmic tangents and secants of the whole quadrant, and for the logarithms of common numbers. For, the fourth or middle column contains the logarithmic tangents, being equal to the differences between the logarithmic fines and cosines when the logarithm of radius is 0, because cosine : fine :: radius : tangent, that is,

in logarithms, $\text{tangent} = \text{fine} - \text{cosine}$. Also the logarithmic fines made negative become the logarithmic cosecants, and the logarithmic cosines made negative are the logarithmic secants; because $\text{fine} : \text{radius} :: \text{radius} : \text{cosecant}$, and $\text{cosine} : \text{radius} :: \text{radius} : \text{secant}$; that is, in logarithms, $\text{cosecant} = 0 - \text{fine} = -\text{fine}$, and $\text{secant} = 0 - \text{cosine} = -\text{cosine}$. And to make it answer the purpose of a table of logarithms of common numbers, the author directs to proceed thus: A number being given, find that number in any table of natural fines, or tangents, or secants, and note the degrees and minutes in its arc; then in his table find the corresponding logarithmic fine, or tangent, or secant, to the same number of degrees and minutes; and it will be the required logarithm of the given number.

After his definitions and description of logarithms, Napier explains his table, and illustrates the precepts with examples, shewing how to take out the logarithms of fines, tangents, secants, and of common numbers; as also how to add and subtract logarithms. He then proceeds to teach the uses of those numbers; and first, in finding any of the terms of three or four proportionals, shewing how to multiply and divide, and to find powers and roots, by logarithms: 2dly, in trigonometry, both plane and spherical, but especially the latter, in which he is very explicit, turning all the theorems for every case into logarithms, computing examples to each in numbers, and then enumerating a set of astronomical problems of the sphere which properly belong to each case. Napier here teaches also some new theorems in spherical trigonometry, particularly that the tangent of half the base : $\text{tang. } \frac{1}{2} \text{ sum legs} :: \text{tang. } \frac{1}{2} \text{ dif. legs} : \text{tang. } \frac{1}{2} \text{ the alternate base}$; and the general theorem for what are called his five circular parts, by which he condenses into one rule, in two parts, the theorems for all the cases of right-angled spherical triangles, which had been separately demonstrated by Pitiscus, Lanibergius, Copernicus, Regiomontanus, and others.

The description and use of Napier's canon being in the Latin language, they were translated into English by Mr. Edward Wright, an ingenious mathematician, and inventor of the principles of what has commonly, though erroneously, been called Mercator's sailing. He sent the translation to the author, at Edinburgh, to be revised by him before publication; who, having carefully perused it, returned it with his approbation, and a few lines introduced besides into the translation. But, Mr. Wright dying soon after he received it back, it was after his death published, together with the tables, but each number to one figure less, in the year 1616, accompanied with a dedication, by his son Samuel Wright, to the East-India Company, as also a preface by Henry Briggs, of whom we shall presently have occasion to speak more at large, on account of the great share he bore in perfecting the logarithms. In this translation Mr. Briggs gave also the description and draught of a scale that had been invented by Mr. Wright, and several other methods of his own, for finding the proportional parts to intermediate numbers, the logarithms having been only printed for such numbers as were the natural fines of each minute.

nute. And the note which baron Napier inserted in this English edition, and which was not in the original, was as follows: "But because the addition and subtraction of these former numbers may seem somewhat painfull, I intend (if it shall please God) in a second edition, to set out such logarithms as shall make those numbers above written to fall upon decimal numbers, such as 100000000, 200000000, 300000000, &c. which are easie to be added or abated to or from any other number." This note had reference to the alteration of the scale of logarithms in such manner, that 1 should become the logarithm of the ratio of 10 to 1, instead of the number 2.3025851, which Napier had made that logarithm in his table, and which alteration had before been recommended to him by Briggs, as we shall see presently. Napier also inserted a similar remark in his *Rabdologia*, which he printed at Edinburgh in 1617.

The following is the preface to Wright's book, which, as far as where it mentions the change from the Latin into English, is a literal translation of the preface to Napier's original; but what follows that, is added by Napier himself. And I willingly insert it here, as it contains a declaration of the motives which led to this discovery, and as the book itself is very scarce. "Seeing there is nothing, (right well beloved students in the mathematics) that is so troublesome to Mathematicall practise, nor that doth more molest and hinder Calculators, then the Multiplications, Divisions, square and cubical Extractions of great numbers, which besides the tedious expence of time, are, for the most part subject to many slippery errors. I began therefore to consider in my minde, by what certaine and ready Art I might remove those hindrances, And having thought upon many things to this purpose, I found at length some excellent briefe rules to be treated of (perhaps) hereafter. But amongst all, none more profitable then this, which together with the hard and tedious Multiplications, Divisions, and

* Of this ingenious man I shall here insert in a note the following memoirs, as they have been translated from a Latin piece taken out of the annals of Gonville and Caius College in Cambridge, viz. "This year (1615) died at London Edward Wright of Garveston in Norfolk, formerly a fellow of this college; a man respected by all for the integrity and simplicity of his manners, and also famous for his skill in the mathematical sciences: Inasmuch that he was deservedly stiled a most excellent mathematician by Richard Hackluyt, the author of an original treatise of our English navigations. What knowledge he had acquired in the science of mechanics, and how usefully he employed that knowledge to the public as well as private advantage, abundantly appear both from the writings he published, and from the many mechanical operations still extant, which are standing monuments of his great industry and ingenuity. He was the first undertaker of that difficult but useful work, by which a little river is brought from the town of Ware in a new Canal, to supply the city of London with water; but by the tricks of others he was hindered from completing the work he had begun. He was excellent both in contrivance and execution, nor was he inferior to the most ingenious mechanic in the making of instruments, either of brass or any other matter. To his invention is owing whatever advantage Hondius's geographical charts have above others; for it was our Wright that taught Jodocus Hondius the method of constructing them which was till then unknown; but the ungrateful Hondius concealed the name of the true author, and arrogated the glory of the invention to himself. Of this fraudulent practice the good man could not help complaining, and justly enough, in the preface to his treatise of the Correction of Errors in the Art of Navigation, which he composed with excellent judgment, and after long experience, to the great advancement of naval affairs. For the improvement of this

and Extractions of rootes, doth also cast away from the worke it selfe, even the very numbers themselves that are to be multiplied, divided, and resolved into rootes, and putteth other numbers in their place, which performe as much as they can do, onely by Addition and Subtraction, Division by two, or Division by three; which secret invention, being (as all other good things are) so much the better as it shall be the more common; I thought good heretofore to set forth in Latine for the publique use of Mathematicians. But now some of our Countrymen in this Island well affected to these studies, and the more publique good, procured a most learned Mathematician to translate the same into our vulgar English tongue, who after he had finished it, sent the Coppy of it to me, to bee seene and considered on by myself, I having most willingly and gladly done the same, finde it to bee most exact and precisely conformable to my minde and the originall. Therefore it may please you who are inclined to these studies, to receive it from me and the Translator, with as much good will as we recommend it unto you. Fare yee well."

There are also extant copies of Wright's * translation with the date 1618 in the title; but this is not properly a new edition, but only the old work with a new title page adapted to it (the old one being cancelled), together with the addition of sixteen pages of new matter, called "An appendix to the Logarithms, shewing the practice of the calculation of triangles, and also a new and ready way for the exact finding out of such lines and logarithmes as are not precisely to be found in the canons." But we are not told by what author: probably it was by Briggs.

Besides the trouble attending Napier's canon, in finding the proportional parts, when used as a table of the logarithms of common numbers, and which was in part remedied by the fore-mentioned contrivances of Wright and Briggs, it was also accompanied with another inconvenience, which arose from the logarithms being sometimes +

this art he was appointed mathematical lecturer by the East India Company, and read lectures in the house of that worthy knight Sir Thomas Smith, for which he had a yearly salary of 50 pounds. This office he discharged with great reputation, and much to the satisfaction of his hearers. He published in English a book on the doctrine of the sphere, and another concerning the construction of sun-dials. He also prefixed an ingenious preface to the learned Gilbert's book on the load-stone. By these and other his writings, he has transmitted his fame to latest posterity. While he was yet a fellow of this college, he could not be concealed in his private study, but was called forth to the public business of the kingdom, by the queen's majesty, about the year 1593. He was ordered to attend the earl of Cumberland in some maritime expeditions. One of these he has given a faithful account of, in the way of a journal or ephemeris, to which he has prefixed an elegant hydrographical chart of his own contrivance. A little before his death he employed himself about an English translation of the book of logarithms, then lately found out by the honourable baron Napier, a Scotchman, who had a great affection for him. This posthumous work of his was published soon after, by his only son Samuel Wright, who was also a scholar of this college. He had formed many other useful designs, but was hindered by death from bringing them to perfection. Of him it may be truly said, that he studied more to serve the public than himself; and though he was rich in fame, and in the promises of the great, yet he died poor, to the scandal of an ungrateful age."

Other anecdotes of him, as well as many other mathematical authors, may be found in the curious history of navigation by Dr. James Wilson, prefixed to Mr. Robertson's excellent treatise on that subject.

or additive, and sometimes — or negative, and which required therefore the knowledge of algebraic addition and subtraction. And this inconvenience was occasioned partly by making the logarithm of radius to be 0, and the sines to decrease, and partly by the compendious manner in which the author had formed the table; making the three columns of sines, cosines and tangents, to serve also for the other three of cosecants, secants, and cotangents.

But this latter inconvenience was well remedied by John Speidell in his *New Logarithms*, first published in 1619, which contained all the six columns, and in this order; sines, cosines, tangents, cotangents, secants, cosecants: and they were besides made all positive, by being taken the arithmetical complements of Napier's, that is, they were the remainders left by subtracting each of these latter from 10000000. And the former inconvenience was more effectually removed by the said Speidell, in an additional table, given in the sixth impression of the former work, in the year 1624. This was a table of Napier's logarithms for the round or integer numbers 1, 2, 3, 4, 5, &c, to 1000, together with their differences and arithmetical complements; as also the halves of the said logarithms, with their differences and arithmetical complements; which halves consequently were the logarithms of the square roots of the said numbers. These logarithms are however a little varied in their form from Napier's, namely, so as to increase from 1, whose logarithm is 0, instead of decreasing to 1, or radius, whose logarithm Napier made 0 likewise; that is, Speidell's logarithm of any number n , is equal to Napier's logarithm of its reciprocal $\frac{1}{n}$: So that in this last table of Speidell's, the logarithm of 1 being 0, the logarithm of 10 is 2302584, the logarithm of 100 is twice as much or 4605168, and that of 1000 thrice as much or 6907753.

This table is now commonly called *hyperbolic* logarithms, because the numbers express the areas between the asymptote and curve of the hyperbola, those areas being limited by ordinates parallel to the other asymptote, the ordinates decreasing in geometrical progression. But this is an improper method of denominating them, as such areas may be made to denote any system of logarithms whatever, as we shall shew more at large in the proper place.

In the year 1619, Robert Napier, son of the inventor of logarithms, published a new edition of his late father's *Logarithmorum Canonis Descriptio*, together with the promised *Logarithmorum Canonis Constructio*, and other miscellaneous pieces written by his father and Mr. Briggs.—Also one Bartholomew Vincent, a bookseller at Lugdunum, or Lyons, in France, printed there an exact copy of the same two works in one volume, in the year 1620; which was four years before the logarithms were carried to France by Wingate, who was therefore erroneously said to have first introduced them into that country. But I shall treat more particularly of the contents of this work after I have enumerated the other writers on this sort of logarithms.

In 1618 or 1619, Benjamin Ursinus, mathematician to the Elector of Brandenburg, published, at Cologne, his *Cursus Mathematicus*, in which is contained a copy of Napier's logarithms, with the addition
of

of some tables of proportional parts. And in 1624 he printed at the same place, his *Trigonometria*, with a table of natural sines and their logarithms, of the Napierian kind and form, to every ten seconds in the quadrant; which he had been at much pains in computing.

In the same year 1624, logarithms, of nearly the same kind, were also published, at Marpurg, by the famous John Kepler, mathematician to the Emperor Ferdinand the second, under the title of *Chilias Logarithmorum ad Totidem Numeros Rotundos, præmissa Demonstratione legitima Ortus Logarithmorum eorumque Usus, &c.* and the year following, a supplement to the same; being applied to round or integer numbers, and to such natural sines as nearly coincide with them. These are exactly the same sort of logarithms as Napier's, being the same logarithms of the natural sines of arcs beginning from the quadrant, whose sine or radius is 10000000, the logarithm of which is made 0, and from thence the sines decreasing by equal differences, down to 0, or the beginning of the quadrant, whilst their logarithms increase to infinity. So that the difference between this table and Napier's consists only in this, namely, that in Napier's table the *arc* of the quadrant is divided into equal parts, differing by one minute each, and consequently their sines, to which the logarithms are adapted, are irrational or interminate numbers, and only expressed by approximate decimals; whereas in Kepler's table, the *radius* is divided into equal parts, which are considered as perfect and terminate sines, having equal differences, and to which terminate sines the logarithms are here adapted. By this means indeed the proportions for intermediate numbers and logarithms are easier made, but then the corresponding arcs are not terminate, but irrational, and only set down to an approximate degree. So that Kepler's table is more convenient as a table of the logarithms of common numbers, and Napier's as the logarithmic sines of the arcs of the quadrant. In both tables the logarithm of the ratio of 10 to 1, is the same quantity, namely 23025852; and as the radius, or greatest sine, is 10000000, whose logarithm is made 0, the logarithms of the decuple parts of it will be found by adding 23025852 continually, or multiplying this logarithm by 2, 3, 4, &c. and hence the logarithm of 1, the first number, or smallest sine, in the table, is 161180959, or 7 times 2302 &c.

Besides the two columns of the natural sines and their logarithms, with the differences of the logarithms, this table of Kepler's consists also of three other columns; the first of which contains the nearest arcs, belonging to those sines, expressed in degrees, minutes and seconds; and the other two express what parts of the radius each sine is equal to, namely, the one of them in 24th parts of the radius, and minutes and seconds of them; and the other in 60th parts of the radius, and minutes of them. As a specimen I have here extracted the last page of the table, printed exactly as in the work.

ARCUS Circuli cum differentiis.	SINUS feu numeri absoluti.	Partes vice- fimæ quartæ.	LOGARITHMI cumdifferentiis	Partes sexagenariæ
19. 34 80. 3. 46	98500.00	23. 38. 24	101.58 1511.36 +	59. 6
20. 12 80. 23. 58	98600.00	23. 39. 50	101.47 1409.89 +	59. 10
20. 53 80. 44. 51	98700.00	23. 41. 17	101.37 1308.52 +	59. 13
21. 42 81. 6. 33	98800.00	23. 42. 43	101.26 1207.26	59. 17
22. 53 81. 29. 26	98900.00	23. 44. 10	101.17 1106.09 +	59. 20
24. 6 81. 53. 32	99000.00	23. 45. 36	101.06 1005.03 +	59. 24
25. 6 82. 18. 38	99100.00	23. 47. 2	100.96 904.07 +	59. 28
26. 28 82. 45. 6	99200.00	23. 48. 29	100.85 803.22 +	59. 31
27. 54 83. 13. 0	99300.00	23. 49. 55	100.76 702.46	59. 35
30. 20 83. 43. 20	99400.00	23. 51. 22	100.65 601.81	59. 38
32. 40 84. 16. 0	99500.00	23. 52. 48	100.56 501.25 +	59. 42
36. 30 84. 52. 30	99600.00	23. 54. 14	100.45 400.80	59. 46
41. 9 85. 33. 39	99700.00	23. 55. 41	100.35 300.45	59. 49
48. 54 86. 22. 33	99800.00	23. 57. 7	100.25 200.20	59. 53
1. 3. 42 87. 26. 15	99900.00	23. 58. 34	100.15 100.05	59. 56
2. 33. 45 90. 0. 0	100000.00	24. 0. 0	100.05 000000.00	60. 0

To the table Kepler prefixes a pretty considerable tract, containing the construction of the logarithms, and a demonstration of their properties and structure, in which he considers logarithms, in the true and legitimate way, as the measures of ratios, as shall be shewn more particularly hereafter in the next part, where I shall treat of the construction of logarithms.

Kepler also introduced the logarithmic calculus into his Rudolphine tables, published in 1627; and inserted in that work several logarithmic tables; as first, a table similar to that above described, except that the second, or column of sines, or of absolute numbers, is omitted, and instead of it another column is added, shewing what part of the quadrant each arc is equal to, namely the quotient, expressed in integers and sexagesimal parts, arising from the dividing the whole quadrant by each given arc; 2dly, Napier's table of logarithmic sines to every minute of the quadrant; also two other smaller tables adapted for the purposes of eclipses and the latitudes of the planets.— In this work also Kepler gives a summary account of logarithms, with
the

the description and use of those that are contained in these tables. And here it is that he mentions Justus Byrgius, as having had logarithms before Napier published them.

Besides the above, some few others published logarithms of the same sort about this time.—But let us now return to treat of the history of the common or Briggs's logarithms, so called because he first computed them, and first mentioned them, and recommended them to Napier, instead of the first sort by him invented.

Mr. Henry Briggs, not less esteemed for his great probity and other eminent virtues, than for his excellent skill in mathematics, was, at the time of the publication of Napier's logarithms, in 1614, professor of geometry in Gresham college in London, having been appointed the first professor after its institution; which appointment he held till January 1620, when he was chosen, also the first, Savilian professor of geometry at Oxford, where he died January the 26th, 1630, aged about 74 years.

On the publication of Napier's logarithms, Briggs immediately applied himself to the study and improvement of them. In a letter to Mr. (afterwards archbishop) Usher, dated the 10th of March 1615, he writes "that he was wholly taken up and employed about the noble invention of logarithms lately discovered." And again, "Napier lord of Markinston hath set my head and hands at work with his new and admirable logarithms; I hope to see him this summer, if it please God; for I never saw a book which pleased me better, and made me more wonder." Thus we find that Briggs began very early to compute logarithms: but these were not of the same kind with Napier's, in which the logarithm of the ratio of 10 to 1 was 2.3025851 &c. for in Briggs's first attempt he made 1 the logarithm of that ratio; and, from the evidence we have, he appears to be the first person who formed the idea of this change in the scale, which he presently and generously communicated both to the public in his lectures, and to lord Napier himself, who afterwards said that he also had thought of the same thing; as appears by the following extract, translated from the preface to Briggs's *Arithmetica Logarithmica*; "Wonder not, says he, that these logarithms are different from those which the excellent baron of *Marchiston* published in his Admirable Canon. For when I explained the doctrine of them to my auditors at Gresham College in London, I remarked that it would be much more convenient, the logarithm of the sine total or radius being 0 (as in the *Canon Mirificus*), if the logarithm of the 10th part of the said radius, namely of $5^{\circ} 44' 21''$, were 100000 &c. and concerning this I presently wrote to the author; also as soon as the season of the year and my public teaching would permit, I went to Edinburgh, where being kindly received by him, I staid a whole month. But when we began to converse about the alteration of them, he said that he had formerly thought of it and wished it; but that he chose to publish those that were already done, till such time as his leisure and health would permit him to make others more convenient. And as to the nature of the change, he thought it more expedient that 0 should be made the logarithm of 1,

and 100000 &c. the logarithm of radius, which I could not but acknowledge was much better. Therefore, rejecting those which I had before prepared, I proceeded at his exhortation to calculate these; and the next summer I went again to Edinburgh, to shew him the principal of them: and should have been glad to do the same the third summer, if it had pleased God to spare him so long."

So that it is plain that Briggs was the inventor of the present scale of logarithms, in which 1 is the logarithm of the ratio of 10 to 1, and 2 that of 100 to 1, &c. and that the share which Napier had in them, was only advising Briggs to begin at the lowest number 1, and make the logarithms, or artificial numbers, as Napier had also called them, to *increase* with the natural numbers instead of *decreasing*; which made no alteration in the figures that expressed Briggs's logarithms, but only in their affection or signs, changing them from negative to positive; so that Briggs's first logarithms to the numbers in the second column of the annexed tablet, would have been as in the first column; but after they were changed, as they are here in the third column; which is a change of no essential difference, as the logarithm of the ratio of 10 to 1, the radix of the natural system of numbers, continues the same, a change in the logarithm of that ratio being the only circumstance that can essentially alter the system of logarithms, the logarithm of 1 being 0. And the reason why Briggs, after that interview, rejected what he had before done, and began anew, was probably because he had adapted his new logarithms to the approximate sines of arcs, instead of the round or integer numbers, and not from their being logarithms of another system, as were those of Napier.

B	Num.	N
n	10^n	$-n$
3	·001	-3
2	·01	-2
1	·1	-1
0	1	0
-1	10	1
-2	100	2
-3	1000	3
$-n$	10^n	n

On Briggs's return from Edinburgh to London the second time, namely in 1617, he printed the first thousand logarithms, to eight places of figures besides the index, under the title of *Logarithmorum Chilias prima*. But these seem not to have been published till after the death of Napier, which happened on the third of April 1618, as before-said; for in the preface to them Briggs says, "why these logarithms differ from those set forth by their most illustrious inventor, of ever respectful memory, in his *Canon Mirificus*, IT IS TO BE HOPED his posthumous work will shortly make appear." And as Napier, after communication had with Briggs on the subject of altering the scale of logarithms, had given notice, both in Wright's translation, and in his own *Rabdologia*, printed in 1617, of his intention to alter the scale (though it appears very plainly that he never intended to compute any more), without making any mention of the share which Briggs had in the alteration, this gentleman modestly gave the above hint. But not finding any regard paid to it in the said posthumous work, published by lord Napier's son in 1619, where the alteration is again adverted to, but still without any mention of Briggs; this gentleman thought he could not do less than state the grounds of that alteration

teration himself, as they are above extracted from his work published in 1624.

Thus, upon the whole matter, it seems evident that Mr. Briggs, whether he had thought of this improvement in the construction of logarithms, of making 1 the logarithm of the ratio of 10 to 1, before lord Napier, or not, (which is a secret that could be known only to Napier himself), was the first person who communicated the idea of such an improvement to the world; and that he did this in his lectures to his auditors at Gresham College in the year 1615, very soon after his perusal of Napier's *Canon Mirificus Logarithmorum* in the year 1614. He also mentioned it to Napier, both by letter in the same year, and on his first visit to him in Scotland in the summer of the year 1616, when Napier approved the idea, and said it had already occurred to himself, and that he had determined to adopt it. It would therefore have been more candid in lord Napier to have told the world in the second edition of this book, that Mr. Briggs had mentioned this improvement to him, and that he had thereby been confirmed in the resolution he had already taken, before Mr. Briggs's communication with him, to adopt it in that his second edition, as being better fitted to the decimal notation of arithmetic which was in general use. Such a declaration would have been but a piece of justice to Mr. Briggs; and the not having made it, cannot but incline us to suspect that lord Napier was desirous that the world should ascribe to him alone the merit of this very useful improvement of the logarithms, as well as that of having originally invented them; though, if the having first communicated an invention to the world be sufficient to intitle a man to the honour of having first invented it, Mr. Briggs had the better title to be called the first inventor of this happy improvement of logarithms.

In 1620, two years after the *Chilias Prima* of Briggs came out, Mr. Edward Gunter published his *Canon of Triangles*, which contains the artificial or logarithmic sines and tangents, for every minute, to seven places of figures, besides the index, the logarithm of radius being 10.0 &c. These logarithms are of the kind last agreed upon by Napier and Briggs, and they were the first tables of logarithmic sines and tangents that were published of this sort. Gunter also in 1623 reprinted the same in his book *De Sectoris et Radio*, together with the *Chilias Prima* of his old colleague Mr. Briggs, he being professor of Astronomy at Gresham college when Briggs was professor of Geometry there, Gunter having been elected to that office the sixth of March 1619, and enjoyed it till his death, which happened on the tenth of December 1626, about the forty-fifth year of his age. In 1623 also Gunter applied these logarithms of numbers, sines and tangents, to straight lines drawn on a ruler; with which proportions in common numbers and trigonometry were resolved by the mere application of a pair of compasses; a method founded on this property, that the logarithms of the terms of equal ratios are equidifferent. This instrument, in the form of a two-foot scale, is now in common use for navigation and other purposes, and is commonly called the Gun-

ter. He also greatly improved the sector for the same uses. Gunter was the first who used the word *co-sine* for the sine of the complement of an arc. He also introduced the use of arithmetical complements into the logarithmical arithmetic, as is witnessed by Briggs, chap. xv. Arith. Log. And it has been said that he started the idea of the logarithmic curve, which was so called because the segments of its axis are the logarithms of the corresponding ordinates.

The logarithmic lines were afterwards drawn in various other ways. In 1627 they were drawn by Wingate, on two separate rulers, sliding against each other, to save the use of compasses in resolving proportions. They were also in 1627 applied to concentric circles, by Oughtred. Then in a special form by a Mr. Milburne of Yorkshire, about the year 1650. And lastly, in 1657, on the present sliding rule, by Seth Partridge.

The discoveries relating to logarithms were carried to France by Mr. Edmund Wingate, but not first of all as he erroneously says in the preface to his book. He published at Paris, in 1624, two small tracts in the French language; and afterwards at London, in 1626, an English edition of the same, with improvements. In the first of these he teaches the use of Gunter's ruler; and in the other, that of Briggs's logarithms, and the artificial sines and tangents. Here are contained also tables of those logarithms, sines, and tangents, copied from Gunter. The edition of these logarithms printed at London in 1635, and the former editions also I suppose, has the units figures disposed along the tops of the columns, and the tens down the margins, like our tables at present; but the whole logarithm, which was only to six places of figures, in the angle of meeting. Which is the first instance that I have seen of this mode of arrangement.

But proceed we now to the larger structure of logarithms.

Briggs had continued from the beginning to labour, with great industry, at the computation of those logarithms of which he before published a short specimen in small numbers. And in 1624 he produced his *Arithmetica Logarithmica*, a stupendous work for so short a time! containing the logarithms of 30000 natural numbers, to fourteen places of figures besides the index, namely from 1 to 20000, and from 90000 to 100000; together with the differences of the logarithms. Some writers say that there was another *tabula*, namely from 100000 to 101000; but none of the copies that I have seen have more than the 30000 above-mentioned, and they were all regularly terminated in the usual way with the word FINIS. The preface to these logarithms contains, among other things, an account of the alteration made in the scale by Napier and himself, from which we before gave an extract; and an earnest solicitation to others to undertake the computation for the intermediate numbers, offering to give instructions, and paper ready ruled for that purpose, to any persons so inclined to contribute to the completion of so valuable a work. In the introduction he gives also an ample treatise on the construction and uses of these logarithms, which will be particularly described hereafter.——By this invitation, and other means, he had hopes of collecting materials for

for the logarithms of the intermediate 70000 numbers, whilst he should employ his own labour more immediately upon the canon of logarithmic sines and tangents, and so carry on both works at once; as indeed they were both equally necessary, and he himself was now pretty far advanced in years.

Soon after this Adrian Vlacq, or Flack, of Gouda in Holland, compleated the intermediate seventy chiliads, and republished the *Arithmetica Logarithmica* at that place, in 1627 and 1628, with those intermediate numbers, making in the whole the logarithms of all numbers to 100000, but only to ten places of figures. To these was added a table of artificial sines, tangents and secants, to every minute of the quadrant.

Briggs himself lived also to compleat a table of logarithmic sines and tangents for the hundredth part of every degree, to fourteen places of figures besides the index; together with a table of natural sines for the same parts to fifteen places, and the tangents and secants for the same to ten places; with the construction of the whole. These tables were printed at Gouda, under the care of Adrian Vlacq, and mostly finished off before 1631, though not published till 1633. But his death, which then happened, prevented him from compleating the application and uses of them. However, the performing of this office, when dying, he recommended to his friend Henry Gellibrand, who was then professor of Astronomy in Gresham college, having succeeded Mr. Gunter in that appointment. Gellibrand accordingly added a preface and the application of the logarithms to plane and spherical trigonometry &c. and the whole was printed at Gouda, by the same printer, and brought out in the same year, 1633, as the *Trigonometria Artificialis* of Vlacq, who had the care of the press, as abovesaid. This work was called *Trigonometria Britannica*; and besides the arcs in degrees and centesms of degrees, it has another column containing the minutes and seconds answering to the several centesms in the first column.

In 1633, as mentioned above, Vlacq printed, at Gouda in Holland, his *Trigonometria Artificialis: sive Magnus Canon Triangulorum Logarithmicus ad Decadas Secundorum Scrupulorum constructus*. This work contains the logarithmic sines and tangents to 10 places of figures, with their differences, for every 10 seconds in the quadrant. To them is also added Brigg's table of the first 20000 logarithms, but carried only to 10 places of figures besides the index, with their differences. The whole is preceded by a description of the tables, and the application of them to plane and spherical trigonometry, chiefly extracted from Briggs's *Trigonometria Britannica*, mentioned above.

Gellibrand published also, in 1635, *An Institution Trigonometricall*, containing the logarithms of the first 10000 numbers, with the natural sines, tangents and secants, and the logarithmic sines and tangents, for degrees and minutes, all to seven places of figures besides the index; as also other tables proper for navigation; with the uses of the whole. Gellibrand died the 9th of February 1636, in the 40th year of his age, to the great loss of the mathematical world.

Besides

Besides the persons hitherto mentioned, who were mostly computers of logarithms, many others have also published tables of those artificial numbers, more or less compleat, and sometimes improved and varied in the manner and form of them. I shall here just advert to a few of the principal.

In 1626, D. Henrion published, at Paris, a treatise concerning Briggs's logarithms of common numbers from 1 to 20000, to eleven places of figures; with the sines and tangents to eight places only.

In 1631 was printed at London, by one George Miller, a book, containing Brigg's logarithms, with their differences, to ten places of figures, besides the index, for all numbers to 100000; as also the logarithmic sines, tangents and secants for every minute of the quadrant; with the explanation and uses in English.

The same year 1631, Richard Norwood published his *Trigonometrie*; in which we find Briggs's logarithms for all numbers to 10000, and for the sines, tangents and secants to every minute, both to seven places besides the index.—In the conclusion of the trigonometry he complains of the unfair practices of printing Vlacq's book in 1627 or 1628, and the book mentioned in the last article. His words are, "Now whereas I have here, and in sundry places in this book, cited Mr. Briggs his *Arithmetica Logarithmica*, (lest I may seem to abuse the reader) you are to understand not the book put forth about a month since in English, as a translation of his, and with the same title; being nothing like his, nor worthy his name; but the book which himself put forth with this title in Latin, being printed at London, anno 1624. And here I have just occasion to blame the ill dealing of these men, both in the matter before mentioned, and in printing a second edition of his *Arithmetica Logarithmica* in Latin, whilst he lived, against his mind and liking; and brought them over to sell, when the first were unfold; so frustrating those additions which Mr. Briggs intended in his second edition, and moreover leaving out some things that were in the first edition of special moment. A practice of very ill consequence, and tending to the great disparagement of such as take pains in this kind."

Francis Bonaventure Cavalerius published at Bologna, in 1632, his *Directorium Generale Uranometricum*, in which are tables of Briggs's logarithms of sines, tangents, secants, and versed sines, each to eight places, for every second of the first five minutes, for every five seconds from five to ten minutes, for every ten seconds from ten to twenty minutes, for every twenty seconds from twenty to thirty minutes, for every thirty seconds from 30' to 1° 30', and for every minute in the rest of the quadrant; which is the first table of logarithmic versed sines that I know of. In this book are contained also the logarithms of the first ten chiliads of natural numbers, namely from 1 to 10000, disposed in this manner, all the twenties at top, and from 1 to 19 on the side, the logarithm of the sum being in the square of meeting. In this work also I think Cavalerius first gave the method of finding the area or spherical surface contained by various arcs described on the surface of a sphere,

Also

Also in the *Trigonometria* of the same author, printed in 1643, besides the logarithms of numbers from 1 to 1000, to eight places, with their differences, we find both natural and logarithmic sines, tangents and secants, the former to seven and the latter to eight places; namely, to every 10'' of the first 30 minutes, to every 30'' from 30' to 1°; and the same for their complements, or backwards through the last degree of the quadrant; the intermediate 88° being to every minute only.

Mr. Nathaniel Roe, "Pastor of Benacre in Suffolke," also reduced the logarithmic tables to a contracted form, in his *Tabulæ Logarithmicæ*, printed at London in 1633. Here we have Briggs's logarithms of numbers from 1 to 100000, to eight places; the fifties placed at top, and from 1 to 50 on the side; also the first four figures of the logarithms at top, and the other four down the columns. They contain also the logarithmic sines and tangents to every 100th part of degrees, to ten places.

Ludovicus Frobenius published at Hamburgh, in 1634, his *Clavis Universa Trigonometriæ*, containing tables of Briggs's logarithms of numbers from 1 to 2000; and of sines, tangents, and secants, for every minute; both to seven places.

But the tables of logarithms of common numbers was reduced to its most convenient form by John Newton, in his *Trigonometria Britannica*, printed at London in 1658, having availed himself of both the improvements of Wingate and Roe, namely, uniting Wingate's disposition of the natural numbers with Roe's contracted arrangement of the logarithms, the numbers being all disposed as in our best tables at present, namely, the units along the top of the page, and the tens down the left-hand side, also the first three figures of each logarithm in the first column, and the remaining five figures in the other columns, the logarithms being to eight places. This work contains also the logarithmic sines and tangents, to eight figures besides the index, for every 100th part of a degree, with their differences, and for 1000th parts in the first three degrees.—In the preface to this work, Newton takes occasion, as Wingate and Norwood had done before, as well as Briggs himself, to censure the unfair practices of some other publishers of logarithms. He says, "In the second part of this institution, thou art presented with Mr. Gellibrand's *Trigonometrie*, faithfully translated from the Latin copy, that which the author himself published under the title of *Trigonometria Britannica*, and not that which Vlacq the Dutchman styles *Trigonometria Artificialis*, from whose corrupt and imperfect copy that seems to be translated, which is amongst us generally known by the name of *Gellibrands Trigonometry*, but those who either knew him, or have perused his writings, can testify that he was no admirer of the old sexagenary way of working, nay, that he did preferre the decimal way before it, as he hath abundantly testified in all the examples of this his *Trigonometry*, which differs from that other which Vlacq hath published, and that which hath hitherto borne his name in English, as in the form; so likewise in the matter of it; for in the two last-mentioned editions, there is something

thing left out in the second chapter of plain triangles, the third chapter wholly omitted, and a part of the third in the spherical, but in this edition nothing, something we have added to both, by way of explanation and demonstration."

In 1670, John Caramuel published his *Mathesis Nova*, in which are contained 1000 logarithms both of Napier's and Briggs's form, as also 1000 of what he calls the Perfect Logarithms, namely the same as those which Briggs first thought of, which differ from the last only in this, that the one increases while the other decreases, the radix, or logarithm of the ratio of 10 to 1, being the same in both.

The books of logarithms have since become very numerous, but the logarithms are mostly of that sort invented by Briggs, and which are now in common use. Of these the most noted for their accuracy or usefulness, besides the works above-mentioned, are Vlacq's small volume of tables, particularly that edition printed at Lyons in 1670; also tables printed at the same place in 1760; but most especially the tables of Sherwin and Gardiner. Of these, Sherwin's *Mathematical Tables* in 8vo, form the most compleat collection of any, containing, besides the logarithms of all numbers to 101000, the sines, tangents, secants, and versed sines, both natural and logarithmic, to every minute of the quadrant. The first edition was in 1706; but the third edition, in 1742, which was revised by Gardiner, is esteemed the most correct of any: as to the last or fifth edition, in 1771, it is so erroneously printed, that no dependence can be placed in it, and it is the most inaccurate book of tables I ever knew; I have a list of several thousand errors which I have corrected in it.

Gardiner also printed at London, in 1742, a quarto volume of "Tables of Logarithms, for all numbers from 1 to 102100, and for the sines and tangents to every ten seconds of each degree in the quadrant; as also, for the sines of the first 72 minutes to every single second: with other useful and necessary tables;" namely, a table of Logistical Logarithms, and three smaller tables to be used for finding the logarithms of numbers to twenty places of figures. Of these tables of Gardiner, only a small number was printed, and that by subscription; and they are now in the highest estimation of any logarithms for their accuracy and usefulness.

An edition of Gardiner's collection was also elegantly printed at Avignon in France, in 1770, with some additions, namely, the sines and tangents for every single second in the first four degrees, and a small table of hyperbolic logarithms copied from a treatise on Fluxions by the late ingenious Mr. Thomas Simpson: but this is not quite so correct as Gardiner's own edition. The tables in all these books are to seven places of figures.

"The logarithmic canon serves to find readily the logarithm of any assigned number; and we are told by Dr. Wallis, in the second volume of his *Mathematical Works*, that an antilogarithmic canon, or one to find as readily the number corresponding to every logarithm, was begun he thinks by Mr. Harriot the algebraist (who died in 1621) and completed by Mr. Walter Warner, the editor of Harriot's works, before

before 1640; which ingenious performance it seems was lost, for want of encouragement to publish it."

"A small specimen of such numbers was published in the Philosophical Transactions, for the year 1714, by Mr. Long of Oxford; but it was not till 1742 that a complete antilogarithmic canon was published, by Mr. James Dodson, wherein he has computed the numbers corresponding to every logarithm from 1 to 100000, to 11 places of figures."

Since the preceding account was written, and whilst it was in the press, there has been printed at Paris, "*Tables Portatives de Logarithmes, publiées a Londres par Gardiner,*" &c. This work is most beautifully printed in a neat portable 8vo volume, and contains all the tables in Gardiner's 4to. volume, with some additions and improvements. But with what degree of accuracy remains yet to be determined. And on this, as well as several other occasions, it is but justice to remark the extraordinary spirit and elegance with which the learned men and the artisans of the French nation undertake and execute works of merit.

THE CONSTRUCTION

O F

LOGARITHMS, &c.

HAVING described the several sorts of logarithms, their rise and invention, their nature and properties, and given some account of the principal early cultivators of them, with the chief collections that have been published of such tables; I proceed now to deliver a more particular account of the ideas and methods employed by each author, and the peculiar modes of construction which they made use of.

And first of the great inventor himself, lord Napier.

Napier's Construction of Logarithms.

The inventor of logarithms did not adapt them to the series of natural numbers 1, 2, 3, 4, 5, &c, as it was not his principal idea to extend them to all arithmetical operations whatever; but he confined his labours to that circumstance which first suggested the necessity of the invention, and adapted his logarithms to the approximate numbers expressing the natural sines of every minute in the quadrant, as they had been set down by former writers on trigonometry.

The same restricted idea was pursued through his method of constructing the logarithms. As the lines of the sines of all arcs, are parts of the radius, or sine of the quadrant, therefore called the *sinus totus* or whole sine, he conceived the line of the radius to be described, or run over, by a point moving along it in such manner, that in equal portions of time it generated, or cut off, parts in a decreasing geometrical progression, leaving the several remainders, or sines, in geometrical progression also; whilst another point, in an indefinite line, described equal parts of it in the same equal portions of time; so that the respective sums of these, or the whole line generated, were always the arithmeticals or

logarithms of those fines. Thus, az is the given radius upon which all the fines are to be taken, and $A\&c$ the indefinite line containing the logarithms; these lines being each generated by the motion of a point, beginning at A, a . Now at the end of the 1st, 2d, 3d, &c, moments, or equal small portions of time, let the moving points be found at the places marked 1, 2, 3, &c; then $za, z1, z2, z3, \&c$, will be the series of natural fines, and Ao (or O), $A1, A2, A3, \&c$, will be their logarithms; supposing the point which generates az to move every where with a velocity decreasing in proportion to its distance from z , namely, its velocity in the points $o, 1, 2, 3, \&c$, to be respectively as the distances $zo, z1, z2, z3, \&c$, whilst the velocity of the point generating the logarithmic line $A\&c$, remains constantly the same as at first in the point A or O .

Sines.	Log.
$a\ o$	$A\ o$
-1	-1
-2	-2
-3	-3
-4	-4
-5	-5
-6	-6
-7	-7
&c	&c
z	7
	&c

Hitherto the author had not fully limited his system or scale of logarithms, having only supposed one condition or limitation, namely, that the logarithm of the radius az should be o . But two independant conditions, no matter what they are, were necessary to limit the scale or system of logarithms. It did not occur to him, that it was proper to form the other limit by affixing some particular value to an assigned number, or part of the radius; but as another condition was necessary, he assumed *this* for it, namely, that the two generating points should begin to move at a, A with equal velocities; or that the increments $a1, A1$, described in the first moments, should be equal; as he thought this circumstance would be attended with some little ease in the computation. And this is the reason that, in his table, the natural fines and their logarithms, at the compleat quadrant, have equal differences; and this is also the reason why his scale of logarithms happens accidentally to agree with what have since been called the hyperbolic logarithms, which have numerical differences equal to those of their natural numbers at the beginning; except only that these latter increase with the natural numbers, and his on the contrary decrease; the logarithms of the ratio of 10 to 1 being the same in both, namely 2.30258509.

And here by the way it may be observed, that Napier's manner of conceiving the generation of the lines of the natural numbers and their logarithms, by the motion of points, is very similar to the manner in which Newton afterwards considered the generation of magnitudes in his doctrine of fluxions; and it is also remarkable that, in art. 2. of the *Habitudines Logarithmorum & suorum naturalium numerorum invicem* in the appendix to the *Constructio Logarithmorum*, Napier speaks of the velocities of the increments or decrements of the logarithms, in the same way as Newton does, namely of his fluxions, where he shews that those velocities, or fluxions, are inversely as the fines or natural numbers of the logarithms; which is a necessary consequence of the nature of the generation of those lines as described above; with this alteration however, that now the radius az must be considered as generated by an equable motion of the point, and the indefinite line $A\&c$ by a motion increasing in the same ratio as the other

other before decreased; which is a supposition that Napier must have had in view when he stated that relation of the fluxions.

Having thus limited his system, Napier proceeds, in the posthumous work of 1619, to explain his construction of the logarithmic canon; and this he effects in various ways, but chiefly by generating, in a very easy manner, a series of proportional numbers and their arithmeticals, or logarithms; and then finding, by proportion, the logarithms to the natural sines, from those of the nearest numbers among the original proportionals.

After describing the necessary cautions he made use of to preserve a sufficient degree of accuracy, in so long and complex a process of calculation; such as annexing several ciphers, as decimals separated by a point to his primitive numbers, and rejecting the decimals thence resulting after the operations were completed, setting the numbers down to the nearest unit in the last figure; and teaching the arithmetical processes of adding, subtracting, multiplying, and dividing the limits between which certain unknown numbers must lie, so as to obtain the limits between which the results must also fall; I say, after describing such particulars, in order to clear and smooth the way, he enters on the great field of calculation itself. Beginning at radius 10000000, he first constructs several descending geometrical series, but of such a nature that they are all quickly formed by an easy continual subtraction, and a division by 2, or by 10, or 100, &c, which is done by only removing the decimal point so many places towards the left hand, as there are ciphers in the divisor. He constructs three tables of such series: The first of these consists of 100 numbers, in the proportion of radius to radius minus 1, or of 10000000 to 9999999; all which are found by only subtracting from each its 10000000th part, which part is also found by only removing each figure 7 places lower: the last of these 100 proportionals is found to be 9999900.0004950.

The 2nd table contains 50 numbers, which are in the continual proportion of the first to the last in the first table, namely, of 10000000.0000000 to 9999900.0004950, or nearly the proportion of 100000 to 99999; these therefore are found by only removing the figures of each number 5 places lower, and subtracting them from the same number: the last of these he finds to be 9995001.222927. And a specimen of these two tables is here annexed.

No.	First Table.	2d Table.
1	10000000.0000000	10000000.0000000
2	9999999.0000000	9999900.0000000
3	9999998.0000001	9999800.0010000
4	9999997.0000003	9999700.0030000
&c	&c till the 100th	&c to the 50th term
50	term, which will be	9995001.222927
100	9999900.0004950	

The 3d table consists of 69 columns, and each column of twenty-one numbers or terms, which terms, in every column, are in the continual proportion of 10000 to 9995, that is, nearly as the first is to the last in the 2d table; and as 10000 exceeds 9995 by the 2000th part, the terms in every column will be constructed by dividing each upper number by 2, removing the figures of the quotient 3 places lower, and then subtracting them; and in this way it is proper to construct only the first column of 21 numbers, the last of which will be

9900473.5780: but the 1st, 2d, 3d, &c, numbers in all the columns, are in the continual proportion of 100 to 99, or nearly the proportion of the first to the last in the first column; and therefore these will be found by removing the figures of each preceding number 2 places lower, and subtracting them, for the like number in the next column. A specimen of this 3d table is as here below.

The 3d Table.					
Terms	1st Column.	2nd Column.	3d Column.	&c till the	69 Column.
1	10000000.0000	99000000.0000	98010000.0000	&c for the	5048858.8000
2	99950000.0000	98950500.0000	97960995.0000	4th, 5th, 6th,	5046334.4605
3	99900002.5000	98901002.4750	97912014.5003	7th, &c col.	5043811.2932
4	99850007.4987	98851574.237	97863058.495	till the last	5041289.3879
5	99800014.9950	98802148.451	97814126.967	or	5038768.7435
&c	&c till	&c	&c		&c
21	9900473.5780	9801468.8423	9703454.1539		4998609.4034

Thus he had, in this 3d table, interposed between the radius and its half, 68 numbers in the continual proportion of 100 to 99; and interposed between every two of these 20 numbers in the proportion of 10000 to 9995: and again, in the 2d table, between 10000000 and 9995000, the two first of the 3d table, he had 50 numbers in the proportion of 100000 to 99999: And lastly, in the 1st table, between 100000000 and 9999900, or the 2 first of the 2d table, 100 numbers in the proportion of 10000000 to 9999999. That is, in all about 1600 proportionals; all found in the most simple manner by little more than easy subtractions; which proportionals nearly coincide with all the natural sines from 90° down to 30°.

To obtain the logarithms of all those proportionals, he demonstrates several properties and relations of the numbers and logarithms, and illustrates the manner of applying them. The principal of these properties are as follows: 1st, that the logarithm of any sine is greater than the difference between that sine and the radius, but less than the said difference when increased in the proportion of the sine to radius*; and 2dly, that the difference between the logarithms of two sines, is less than the difference of the sines increased in the proportion of the less sine to radius, but greater than the said difference of the sines increased in the proportion of the greater sine to radius†.

* By this first theorem, r being radius, the logarithm of the sine s , is between $r-s$ and $\frac{r-s}{s}r$; and therefore, when s differs but little from r , the logarithm of s will be nearly equal to $\frac{r+s \times r-s}{2s}$, the arithmetical mean between the limits $r-s$ and $\frac{r-s}{s}r$; but still nearer to $r-s \sqrt{\frac{r}{s}}$ or $\frac{r-s}{s} \sqrt{rs}$, the geometrical mean between the said limits.

† By this second theorem, the difference between the logarithms of the two sines S and s , lying between the limits $\frac{S-s}{s}r$ and $\frac{S-s}{S}r$, will, when those sines differ but little, be nearly equal to $\frac{S^2-s^2}{2Ss}r$ or $\frac{S+s \times S-s}{2Ss}r$, their arithmetical mean; or nearly $= \frac{S-s}{\sqrt{Ss}}r$, the geometrical mean; or nearly $= \frac{S-s}{S+s} 2r$, by substituting, in the last denominator, $\frac{S}{2}$, $S+s$ for \sqrt{Ss} , to which it is nearly equal.

Hence,

Hence, by the 1st theorem, the logarithm of 10000000, the radius or first term in the first table, being 0, the logarithm of 9999999, the 2d term, will be between 1 and 1.00000001, and will therefore be equal to 1.000000005 very nearly: and this will be also the common difference of all the terms or proportionals in the first table; and therefore by the continual addition of this logarithm, there will be obtained the logarithms of all these 100 proportionals: consequently 100 times the said first logarithm, or the last of the above sums, will give 100.0000005, for the logarithm of 9999900.0004950, the last of the said 100 proportionals.

Then, by the 2d theorem, it easily appears that .0004950 is the difference between the logarithms of 9999900.0004950 and 9999900, the last term of the first table and the 2d term of the second table; this then being added to the last logarithm, gives 100.0005000 for the logarithm of the said 2d term, as also the common difference of the logarithms of all the proportionals in the 2d table; and therefore by continually adding it, there will be generated the logarithms of all these proportionals in the 2d table; the last of which is 5000.025, answering to 9995001.222927 the last term of that table.

Again, by the 2d theorem, the difference between the logarithms of this last proportional of the 2d table, and the 2d term in the first column of the 3d table, is found to be 1.2235387: which being added to the last logarithm, gives 5001.2485387 for the logarithm of 9995000, the said 2d term of the 3d table, as also the common difference of the logarithms of all the proportionals in the first column of that table; and this therefore, being continually added, gives all the logarithms of that first column, the last of which is 100024.97077, the logarithm of 9900473.5780, the last term of the said column.

Finally, by the 2d theorem again, the difference between the logarithms of this last number and 9900000, the first term in the 2d column, is 478.3502; which being added to the last logarithm, gives 100503.3210 for the logarithm of the said first term in the 2d column, as well as the common difference of the logarithms of all the numbers on the same line in every line of the table, namely, of all the 1st terms, of all the 2d, of all the 3d, of all the 4th, &c, terms in all the columns; and which therefore, being continually added to the logarithms in the first column, will give the corresponding logarithms in all the other columns.

And thus is compleated what the author calls the radical table, in which he retains only one decimal place in the logarithms (or *artificials*, as he always calls them in his tract on the construction), and four in the naturals. A specimen of the table is as here follows.

Radical Table.						
Terms	1st Column.		2d Column.		69th Column.	
	Naturals.	Artifici.	Naturals.	Artifici.	Naturals.	Artificials
1	10000000.0000	0	9900000.0000	100503.3	5048858.8900	6834225.8
2	9995000.0000	5001.2	9895050.0000	105504.6	5046333.4605	6839227.1
3	9990002.5000	10002.5	9890102.4750	110505.8	5043811.2932	6844228.3
4	9985007.4987	15003.7	9885157.4237	115507.1	5041289.3879	6849229.6
5	9980014.9950	20005.0	9880214.8451	120508.3	5038768.7435	6854230.8
&c	&c till	&c	&c	&c	&c	&c
21	9900473.5780	100025.0	9801468.8422	200528.2	4908609.4034	6934250.8

Having

Having thus, in the most easy manner, compleated the radical table, by little more than mere addition and subtraction, both for the natural numbers and logarithms; the logarithmic fines were easily deduced from it by means of the 2d theorem, namely, taking the sum and difference of each tabular fine and the nearest number in the radical table, annex 7 ciphers to the difference, divide the result by the sum, and half the quotient will be the difference between the logarithms of the said numbers, namely, between the tabular fine and radical number; consequently, adding or subtracting this difference, to or from the given logarithm of the radical number, there will be obtained the logarithmic fine required. And thus the logarithms of all the fines from radius to the half of it, or from 90° to 30° , were perfected.

Next, for determining the fines of the remaining 30 degrees, he delivers two methods. In the first of these he proceeds in this manner: Observing that the logarithm of the ratio of 2 to 1, or of half the radius, is 6931469.22, of 4 to one is the double of this, of 8 to 1 is triple of it, &c; that of 10 to 1 is 23025842.34, of 20 to 1 is the sum of the logarithms of 2 and 10, and so on by composition for the logarithms of the ratios between 1 and 40, 80, 100, 200, &c, to 1000000; he multiplies any given fine, for an arc less than 30 degrees, by some of these numbers, till he finds the product nearly equal to one of the tabular numbers; then by means of this and the second theorem, the logarithms of this product is found; to which adding the logarithm that answers to the multiple abovementioned, the sum is the logarithm sought. But the other method is still much easier, and is derived from this property, which he demonstrates, namely, as half radius is to the fine of half an arc, so is the cosine of the said half arc to the fine of the whole arc; or as $\frac{1}{2}$ radius : fine of an arc :: cosine of the arc : fine of double the arc; hence the logarithmic fine of an arc is found, by adding together the logarithms of half radius and of the fine of the double arc, and then subtracting the logarithmic cosine from the sum.

And thus the remainder of the fines, from 30° down to 0, are easily obtained. But in this latter way, the logarithmic fines for full one half of the quadrant, or from 0 to 45 degrees, he observes, may be derived; the other half having already been made by the general method of the radical table, by one easy division and addition or subtraction for each.

I have dwelt the longer on this work of the inventor of logarithms, because I have not seen in any author an account of his method of constructing his table, although it is perfectly different from any other method used by the later computers, and indeed almost peculiar to his species of logarithms. The whole of this work manifests great ingenuity in the designer, as well as much accuracy. But notwithstanding the caution he took to obtain his logarithms true to the nearest unit in the last figure set down in the tables, by extending the numbers in the computations to several decimals, and other means; he had been disappointed of that end, either by the inaccuracy of his assistant computers or transcribers, or through some other cause; as the logarithms in the table are commonly very inaccurate. It is remarkable

remarkable too that in this tract on the construction of the logarithms, Lord Napier never calls them logarithms, but every where *artificials*, as opposed in idea to the natural numbers: and this notion of natural and artificial numbers I take to have been his first idea of this matter, and that he altered the word *artificials* to *logarithms* in his first book, on the description of them, when he printed it, in the year 1614, and that he would also have altered the word every where in this posthumous work if he had lived to print it: for in the two or three pages of appendix, annexed to the work by his son from Napier's papers, he again always calls them logarithms. This appendix relates to the change of the logarithms to that scale in which 1 is the logarithm of the ratio of 10 to 1, the logarithm of 1, with or without ciphers, being 0; and it appears to have been written after Briggs communicated to him his idea of that change.

Napier here in this appendix also briefly describes some methods by which this new species of logarithms may be constructed. Having supposed 0 to be the logarithm of 1, and 1 with any number of ciphers, as 10000000000, the logarithm of 10; he directs to divide this logarithm of 10, and the successive quotients, ten times by 5, by which divisions there will be obtained these other ten logarithms, namely 2000000000, 400000000, 80000000, 16000000, 3200000, 640000, 128000, 25600, 5120, 1024: then this last logarithm, and its quotients, being divided ten times by 2, will give these other ten logarithms 512, 256, 128, 64, 32, 16, 8, 4, 2, 1. And the numbers answering to these twenty logarithms, we are directed to find in this manner; namely, extract the 5th root of 10 (with ciphers), then the 5th root of that root; and so on for ten continual extractions of the 5th root; so shall these ten roots be the natural numbers belonging to the first ten logarithms, above found in continually dividing by 5: Next, out of the last 5th root we are to extract the square root, then the square root of this last root, and so on for ten successive extractions of the square root; so shall these last ten roots be the natural numbers corresponding to the logarithms or quotients arising from the last ten divisions by the number 2. And from these twenty logarithms, 1, 2, 4, 8, 16, &c, and their natural numbers, the author observes that other logarithms and their numbers may be formed, namely by adding the logarithms and multiplying their correspondent numbers. It is evident that this process would generate rather an antilogarithmic canon, such as Dodson's, than the table of Briggs; and that the method would also be very laborious, since, besides the very troublesome original extractions of the 5th roots, all the numbers would be very large, by the multiplication of which the successive secondary natural numbers are to be found.

Our author next mentions another method of deriving a few of the primitive numbers and their logarithms, namely, by taking continually geometrical means, first between 10 and 1, then between 10 and this mean, and again between 10 and the last mean, and so on; and taking the arithmetical means between their corresponding logarithms. He then lays down various relations between numbers and their logarithms, such as that the products and quotients of numbers, answer to the sums and differences of their logarithms; and that the powers and roots of

 numbers,

numbers, answer to the products and quotients of the logarithms by the index of the power or root, &c; as also that, of any two numbers, whose logarithms are given, if each number be raised to the power denoted by the logarithm of the other, the two results will be equal. He then delivers another method of making the logarithms to a few of the prime integer numbers, which is well adapted for constructing the common table of logarithms. This method easily follows from what has been said above, and it depends on this property, that the logarithm of any number in this scale, is 1 less than the number of places or figures contained in that power of the given number whose exponent is 10000000000 or the logarithm of 10, at least as to integer numbers, for they really differ by a fraction, as is shewn by Mr. Briggs in his illustrations of these properties, printed at the end of this appendix to the construction of logarithms. I shall here set down one more of these relations, as the manner in which it is expressed is exactly similar to that of fluxions and fluents, and it is this: Of any two numbers, as the greater is to the less, so is the velocity of the increment or decrement of the logarithms at the less, to the velocity of the increment or decrement of the logarithms at the greater: that is, in our modern notation, as $X : Y :: \dot{y}$ to \dot{x} , where \dot{x} and \dot{y} are the fluxions of the logarithms of X and Y .

Kepler's Construction of Logarithms.

The logarithms of Briggs and Kepler were both printed the same year, 1624; but as the latter are of the same sort as Napier's, I shall here give the author's construction of them, before we proceed to that of Briggs's.

We have already (pa. 31 & seq.) described the nature and form of Kepler's logarithms, shewing that they are of the same kind as Napier's, but only a little varied in the form of the table. It may also be added that, in general, the ideas which these two masters had on this subject, were of the same nature, only it was more fully and methodically laid down by Kepler, who expanded, and delivered in a regular science, the hints that were given by the illustrious inventor. The foundation and nature of their methods of construction, are also the same, but only a little varied in their modes of applying them. Kepler here first of any treats of logarithms in the true and genuine way of the measures of ratios, or proportions *, as he calls them, and that in a very full and scientific manner: and this method of his was afterwards followed and abridged by Mercator, Halley, Cotes, and others, as we shall see in the proper places. Kepler first erects a regular and purely mathematical system of proportions, and the measures of proportions,

* Kepler almost always uses the term *proportion* instead of *ratio*, which I also shall do in my account of his work, as well as conform in expressions and notations to his other peculiarities. It may also be here remarked, that I observe the same practice in describing the works of other authors, the better to convey the idea of their several methods and stile. And this may serve to account for some seeming inequalities in the language of this history.

treated at considerable length in a number of propositions, which are fully and chastely demonstrated by genuine mathematical reasoning, and illustrated by numerical examples. This part contains and demonstrates both the nature and the principles of the structure of logarithms. And in the second part he applies those principles in the actual construction of his table, which contains only 1000 numbers and their logarithms, in the form as we before described: and in this part he indicates the various contrivances made use of in deducing the logarithms of proportions one from another, after a few of the leading ones had been first formed by the general and more remote principles. He uses the name *logarithms*, given them by the inventor, being the most proper, as expressing the very nature and essence of those artificial numbers, and containing as it were a definition in the very name of them; but without taking any notice of the inventor, or of the origin of those useful numbers.

As this tract is very curious and important in itself, and is besides very rare and little known, instead of a particular description only, I shall here give a brief translation of both the parts, omitting only the demonstrations of the propositions, and some rather long illustrations of them.

The book is dedicated to Philip, landgrave of Hesse, but is without either preface or introduction, and commences immediately with the subject of the first part, which is intituled *The Demonstration of the Structure of Logarithms*; and the contents of it are as follows.

Postulate 1. That all proportions equal among themselves, by whatever variety of couplets of terms they may be denoted, are measured or expressed by the same quantity.

Axiom 1. If there be any number of quantities of the same kind, the proportion of the extremes is understood to be composed of all the proportions of every adjacent couplet of terms, from the first to the last.

1 Proposition. The mean proportional between two terms divides the proportion of those terms into two equal proportions.

Axiom 2. Of any number of quantities, regularly increasing the means divide the proportion of the extremes into one proportion more than the number of the means.

Postulate 2. That the proportion between any two terms, is divisible into any number of parts, until those parts become less than any proposed quantity.

An example of this section is then inserted in a small table, in dividing the proportion which is between 10 and 7 into 1073741824 equal parts, by as many mean proportionals wanting one, namely, by taking the mean proportional between 10 and 7, then the mean between 10 and this mean, and the mean between 10 and the last, and so on for 30 means, or 30 extractions of the square root, the last or 30th of which roots is 99999999966782056900 and the 30th power of 2, which is 1073741824, shews into how many parts the proportion between 10 and 7, or between 1000 &c and 700 &c, is divided by 1073741824 means each of which parts is equal to the proportion between 1000 &c, and the 30th mean 999 &c. that is the proportion between 1000 &c and 999 &c, is the 1073741824th part of the proportion between 10 and 7. Then by assuming the small difference 00000.00003.32179.43100, for the measure of the very small element of the proportion of 10 to 7, or for the measure of the proportion of 1000 &c to 999 &c, or for the logarithm of this last term, and multiplying it by 1073741824, the number of parts, the product will give 35667-49481 37222.14400 for the logarithm of the less term 7 or 700 &c.

Postulate 3. That the extremely small quantity or element of a proportion, may be measured or denoted by any quantity whatever; as for instance, by the difference of the terms of that element.

2 Proposition. Of three continued proportionals, the difference of the two first has to the difference of the two latter, the same proportion which the first term has to the 2d, or the 2d to the 3d.

3 Prop. Of any continued proportionals, the greatest terms have the greatest difference, and the least terms the least.

4 Prop. In any continued proportionals, if the difference of the greatest terms be made the measure of the proportion between *them*, the difference of any other couplet will be less than the true measure of *their* proportion.

5 Prop. In continued proportionals, if the difference of the greatest terms be made the measure of their proportion, then the proportion of the greatest to any other term will be greater than *their* difference.

6 Prop. In continued proportionals, if the difference of the greatest term and any one of the less, taken not immediately next to it, be made the measure of their proportion; then the proportion which is between the greatest and any other term greater than the one before taken, will be less than the difference of those terms; but the proportion which is between the greatest term and any one less than that first taken, will be greater than their difference.

7 Prop. Of any quantities placed according to the order of their magnitudes, if any two successive proportions be equal, the three successive terms which constitute them, will be continued proportionals.

8 Prop. Of any quantities placed in the order of their magnitudes, if the intermediates lying between any two terms, be not among the mean proportionals which can be interposed between the said two terms, then such intermediates do not divide the proportion of those two terms into commensurable proportions.

Besides the demonstrations, as usual, several definitions are here given; as of commensurable proportions, &c.

9 Prop. When two expressible lengths are not to one another as two figurate numbers of the same species, such as two squares, or two cubes; there cannot fall between them other expressible lengths, which shall be mean proportionals, and as many in number as that species requires, namely, one in the squares, two in the cubes, three in the biquadrats, &c.

10 Prop. Of any expressible quantities, following in the order of their magnitudes, if the two extremes be not in the proportion of two square numbers, or two cubes, or two other powers of the same kind; none of the intermediates divide the proportion into commensurables.

11 Prop. All the proportions, taken in order, which are between expressible terms that are in arithmetical proportion, are incommensurable to one another. As between 8, 13, 18.

12 Prop. Of any quantities placed in the order of magnitude, if the difference of the greatest terms be made the measure of their proportion, then the difference between any two others will be less than the measure of *their* proportion; and if the difference of the two least terms be made the measure of their proportion, then the differences of
the

the rest will be greater than the measure of the proportion between their terms.

Corol. If the measure of the proportion between the greatest, exceed their difference, then the proportion of this measure to the said difference, will be less than that of a following measure to the difference of its terms. Because proportionals have the same ratio.

13 Prop. If three quantities follow one another in the order of magnitude; the proportion of the two last will be contained in the proportion of the extremes, a less number of times than the difference of the two least is contained in the difference of the extremes: And on the contrary, the proportion of the two greatest will be contained in the proportion of the extremes, oftener than the difference of the former is contained in that of the latter.

Corol. Hence if the difference of the two greater be equal to the difference of the two less terms, the proportion between the two greater will be less than the proportion between the two less.

14 Prop. Of three equidifferent quantities taken in order, the proportion between the extremes is more than double the proportion between the two greater terms.

Corol. Hence it follows, that half the proportion of the extremes, is greater than the proportion of the two greatest terms, but less than the proportion of the two least.

15 Prop. If two quantities constitute a proportion, and each quantity be lessened by half the greater; the remainders will constitute a proportion greater than double the former.

16 Prop. The aliquot parts of incommensurable proportions, are incommensurable to each other.

17 Prop. If one thousand numbers follow one another in the natural order, beginning at 1000, and differing all by unity, viz. 1000, 999, 998, 997, &c; and the proportion between the two greatest 1000, 999, by continual bisection, be cut into parts that are smaller than the excess of the proportion between the next two 999, 998, over the said proportion between the two greatest 1000, 999; and then for the measure of that small element of the proportion between 1000, 999, there be taken the difference of 1000 and that mean proportional which is the other term of the element. Again, if the proportion between 1000, 998 be likewise cut into double the number of parts which the former proportion between 1000, 999 was cut into; and then for the measure of the small element in this division, be taken the difference of its terms, of which the greater is 1000. And, in the same manner, if the proportion of 1000 to the following numbers, as 997, &c, by continual bisection, be cut into particles of such magnitude, as may be between $\frac{3}{2}$ and $\frac{1}{2}$ of the element arising from the section of the first proportion between 1000 and 999; the measure of each element will be given from the difference of its terms. Then, this being done, the measure of any one of the 1000 proportions, will be composed of as many measures of its element, as there are of those elements in the said divided proportion. And all these measures, for all the proportions, will be sufficiently exact for the nicest calculations.

All these sections and measures of proportions are performed in the manner of that described at postulate 2, and the operation is abundantly explained by numerical calculations.

18 Prop. The proportion of any number to the first term 1000 being known; there will also be known the proportion of the rest of the numbers in the same continued proportion, to the said first term.

So from the known proportion between 1000 and 900,

there is also known the proportion of 1000 to 810, and to 729;

And from 1000 to 800, also 1000 to 640, and to 512;

And from 1000 to 700, also 1000 to 490, and to 343;

And from 1000 to 600, also 1000 to 360, and to 216;

And from 1000 to 500, also 1000 to 250, and to 125.

Corol. Hence arises the precept for squaring, cubing, &c; as also for extracting the square root, cube root, &c, out of the first figures of numbers. For it will be, as the greatest number of the chiliad as a denominator, is to the number proposed as a numerator, so is this to the square of the fraction, and so is this to the cube.

19 Prop. The proportion of a number to the first, or 1000, being known; if there be two other numbers in the same proportion to each other, then the proportion of one of these to 1000 being known, there will also be known the proportion of the other to the same 1000.

Corol. 1. Hence from the 15 proportions mentioned in prop. 18, will be known 120 others below 1000, to the same 1000.

For so many are the proportions, equal to some one or other of the said 15, that are among the other integer numbers which are less than 1000.

Corol. 2. Hence arises the method of treating the Rule-of-Three, when 1000 is one of the given terms.

For this is effected by adding to, or subtracting from, each other, the measures of the two proportions of 1000 to each of the other two given numbers, according as 1000 is, or is not, the first term in the Rule-of-three.

20 Prop. When four numbers are proportional, the first to the second as the third to the fourth, and the proportions of 1000 to each of the three former are known, there will also be known the proportion of 1000 to the fourth number.

Corol. 1. By this means other chiliads are added to the former.

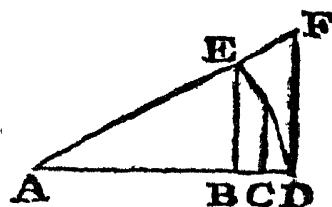
Corol. 2. Hence arises the method of performing the Rule-of-three, when 1000 is not one of the terms. Namely, from the sum of the measures of the proportions of 1000 to the second and third, take that of 1000 to the first, and the remainder is the measure of the proportion of 1000 to the fourth term.

Definition. The measure of the proportion between 1000 and any less number, as before described, and expressed by a number, is set opposite to that less number in the chiliad, and is called its LOGARITHM, that is, the number ($\alpha\rho\iota\theta\mu\delta\epsilon$) indicating the proportion ($\lambda\omicron\gamma\omicron\nu$) which 1000 bears to that number, to which the logarithm is annexed.

21 Prop. If the first or greatest number be made the radius of a circle, or *sinus totus*; every less number, considered as the cosine of some arc, has a logarithm greater than the versed sine of that arc, but less than the difference between the radius and secant of the arc; except only in the term next after the radius, or greatest term, the logarithm of which by the hypothesis is made equal to the versed sine.

22. Prop.

That is, if CD be made the logarithm of AC , or the measure of the proportion of AC to AD ; then the measure of the proportion of AB to AD , that is the logarithm of AB , will be greater than BD , but less than EF . And this is the same as Napier's first rule in page 44.



22. *Prop.* The same things being supposed; the sum of the versed sine and excess of the secant over the radius, is greater than double the logarithm of the cosine of an arc.

Corol. The log. cosine is less than the arithmetic mean between the versed sine and the excess of the secant.

Precept 1. Any sine being found in the canon of sines, and its defect below radius to the excess of the secant above radius; then shall the logarithm of the sine be less than half that sum, but greater than the said defect or covered sine.

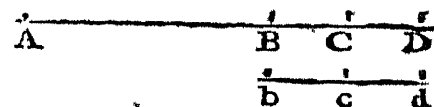
Let there be the sine 99970.1490 of an arc:
 Its defect below radius is 29.8510 the covers. and less than logarithm sine;
 Add the excess of the secant 29.8599
 Sum 59.7109
 its half or 29.8555 greater than the logarithm,
 Therefore the logarithm is between $\begin{cases} 29.8510 \text{ and} \\ 29.8555. \end{cases}$

Precept 2. The logarithm of the sine being found, you will also find nearly the logarithm of the round or integer number which is next less than your sine with a fraction, by adding that fractional excess to the logarithm of the said sine.

Thus the logarithm of the sine 99970.149 is found to be about 29.854; if now the logarithm of the round number 99970.000 be required, add 149 the fractional part of the sine to its logarithm, observing the point, thus $\begin{matrix} 29.854 \\ 149 \\ \hline 30.003 \end{matrix}$ is the logarithm of the round number 999700.000 nearly.

23. *Prop.* Of three equidifferent quantities, the measure of the proportion between the two greater terms, with the measure of the proportion between the two less terms, will constitute a proportion, which will be greater than the proportion of the two greater terms, but less than the proportion of the two least.

Thus if AB, AC, AD be three quantities having the equal differences BC, CD ; and if the measure of the proportion of AD, AC be cd , and that of AC, AB be bc ; then the proportion of cd to cb will be greater than the proportion of AC to AD , but less than the proportion of AB to AC .



24. *Prop.* The said proportion between the two measures, is less than half the proportion between the extreme terms. That is, the proportion between bc, cd , is less than half the proportion between AB, AD .

Corol. Since therefore the arithmetical mean divides the proportion into unequal parts, of which the one is greater, and the other less, than half the whole; if it be enquired what proportion is between these proportions, the answer is, that it is a little less than the said half.

An Example of finding nearly the limits, greater and less, to the measure of any proposed proportion.

It being known that the measure of the proportion between 1000 and 900 is 10536.05, required the measure of the proportion 900 to 800, where the terms 1000, 900, 800, have equal differences. Therefore as 9 to 10 so 10536.05 to 11706.72, which is less than 11778.30 the measure of the proportion 9 to 8. Again, as the mean proportional between 8 and 10 (which is 8.9442719) is to 10 so 10536.05 to 11779.66, which is greater than the measure of the proportion between 9 and 8.

Axiom. Every number denotes an expressible quantity.

25 Prop. If the 1000 numbers, differing by 1, follow one another in the natural order; and there be taken any two adjacent numbers, as the terms of some proportion; the measure of this proportion will be to the measure of the proportion between the two greatest terms of the chiliad, in a proportion greater than that which the greatest term 1000 bears to the greater of the two terms first taken, but less than the proportion of 1000 to the less of the said two selected terms.

So of the 1000 numbers taking any two successive terms, as 501 and 500, the logarithm of the former being 691 14.92, and of the latter 693 14.72, the difference of which is 199.80, Wherefore by the definition, the measure of the proportion between 501 and 500 is 199.80. In like manner, because the logarithm of the greatest term 1000 is 0, and of the next 999 is 100.05, the difference of these logarithms, and the measure of the proportion between 1000 and 999, is 100.05. Couple now the greatest term 1000 with each of the selected terms 501 and 500; couple also the measure 199.80 with the measure 100.05; so shall the proportion between 199.80 and 100.05 be greater than the proportion between 1000 and 501, but less than the proportion between 1000 and 500.

Corol. 1. Any number below the first 1000 being proposed, as also its logarithm; the differences of any logarithms antecedent to that proposed, towards the beginning of the chiliad, are to the first logarithm (viz. that which is assigned to 999), in a greater proportion than 1000 to the number proposed; but of those which follow towards the last logarithm, they are to the same in a less proportion.

Corol. 2. By this means the places of the chiliad may easily be filled up, which have not yet had logarithms adapted to them by the former propositions.

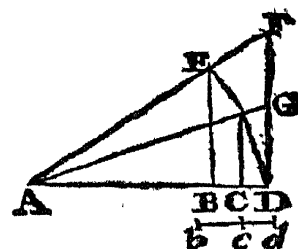
26 Prop. The difference of two logarithms, adapted to two adjacent numbers, is to the difference of these numbers, in a proportion greater than 1000 bears to the greater of those numbers, but less than that of 1000 to the less of the two numbers.

This 26 prop. is the same as Napier's second rule at page 44.

27 Prop. Having given two adjacent numbers of the 1000 natural numbers, with their logarithmic indices, or the measures of the proportions which those absolute or round numbers constitute with 1000 the greatest; the increments or differences of these logarithms will be to the logarithm of the small element of the proportions, as the secants of the arcs whose cosines are the two absolute numbers, is to the greatest number, or the radius of the circle: so that, however, of the said two secants, the less will have to the radius a less proportion, than the proposed difference has to the first of all, but the greater will have a greater proportion, and so also will the mean proportional between the said secants have a greater proportion.

Thus

Thus if BC , CD be equal, also b the logarithm of AB , and c the logarithm of AC ; then the proportion of b to c will be greater than the proportion of AG to AD , but less than that of AF to AD , and also less than that of the mean proportional between AF and AG to AD .



Corol. 1. The same obtains also when the two terms differ, not only by the unit of the small element, but by another unit which may be ten fold, a hundred fold, or a thousand fold of that.

Corol. 2. Hence the differences will be obtained sufficiently exact, especially when the absolute numbers are pretty large, by taking the arithmetical mean between two small secants, or (if you will be at the labour) by taking the geometrical mean between two larger secants, and then by continually adding the differences, the logarithms will be produced.

Corol. 3. Precept. Divide the radius by each term of the assigned proportion, and the arithmetical mean (or still nearer the geometrical mean) between the quotients will be the required increment, which being added to the logarithm of the greater term, will give the logarithm of the less term.

Example.

Let there be given the logarithm of 700, viz. 35667.4948, to find the logarithm to 699.
 Here radius divided by 700 gives 1428571 &c.
 and divided by 699 gives 1430672 &c.
 the arithmetic mean is 142.962
 which added to 35667.4948
 gives the logarithm to 699 35810.4568

Corol. 4. Precept for the logarithms of sines.

The increment between the logarithms of two sines, is thus found: find the geometrical mean between the cosecants, and divide it by the difference of the sines, the quotient will be the difference of the logarithms.

Example.

1°	1' sine 2909 cosec.	343774682	} The quotient 80000 exceeds the required increment of the logarithms, because the secants are here so large.
2	sine 5818 cosec.	171887319	
	diff. 2909 geom. mean 2428 nearly.		

Appendix. Nearly in the same manner it may be shewn, that the second differences are in the duplicate proportion of the first, and the third in the duplicate of the second. Thus for instance, in the beginning of the logarithms the first difference is 100.00000, viz. equal to the difference of the numbers 100000.00000 and 99900.00000; the second, or difference of the differences, 10000; the third 20. Again after arriving at the number 50000.00000, the logarithms have for a difference 200.00000, which is to the first difference, as the number 100000.00000 to 50000.00000; but the second difference is 40000, in which 10000 is contained four times; and the third 328, in which 20 is contained sixteen times. But since in treating of new matters we labour under the want of proper words, wherefore least we should become too obscure, the demonstration is omitted untried.

28 *Prop.* No number expresses exactly the measure of the proportion, between two of the 1000 numbers, constituted by the foregoing method.

29 *Prop.* If the measures of all proportions be expressed by numbers or logarithms; all proportions will not have assigned to them their due portion of measure, to the utmost accuracy.

30 *Prop.* If to the number 1000, the greatest of the chiliad, be referred others that are greater than it, and the logarithm of 1000 be made 0, the logarithms belonging to those greater numbers will be negative.

This concludes the first or scientific part of the work, the principles of which Kepler applies, in the second part, to the actual construction of the first 1000 logarithms, which is pretty minutely described. This part is entituled *A very compendious method of constructing the Chiliad of Logarithms*; and it is not improperly so called, the method being very concise and easy. The fundamental principles are briefly these: That at the beginning of the logarithms, their increments or differences are equal to those of the natural numbers: that the natural numbers may be considered as the decreasing cosines of increasing arcs: and that the secants of those arcs at the beginning have the same differences as the cosines, and therefore the same differences as the logarithms. Then, since the secants are the reciprocals of the cosines, by these principles and the third corol. to the twenty-seventh proposition, he establishes the following method of constituting the 100 first or smallest logarithms to the 100 largest numbers, 1000, 999, 998, 997, &c to 900. viz. Divide the radius 1000, increased with seven ciphers, by each of these numbers separately, disposing the quotients in a table, and they will be the secants of those arcs which have the divisors for their cosines; continuing the division to the 8th figure, as it is in that place only that the arithmetical and geometrical means differ. Then by adding successively the arithmetical means between every two successive secants, the sums will be the series of logarithms. Or by adding continually every two secants, the successive sums will be the series of the double logarithms.

Besides these 100 logarithms, thus constructed, he constitutes two others by continual bisection, or extractions of the square root, after the manner described in the second postulate. And first he finds the logarithm which measures the proportion between 100000.00 and 97656.25, which latter term is the third proportional to 1024 and 1000, each with two ciphers; and this is effected by means of twenty-four continual extractions of the square root, determining the greatest term of each of twenty-four classes of mean proportionals; then the difference between the greatest of these means and the first or whole number 1000, with ciphers, being as often doubled, there arises 2371.6526 for the logarithm sought, which made negative is the logarithm of 1024. Secondly, the like process is repeated for the proportion between the numbers 1000 and 500, from which arises 69314.7193 for the logarithm of 500; which he also calls the logarithm of duplication, being the measure of the proportion of 2 to 1.

Then

Then from the foregoing he derives all the other logarithms in the chiliad, beginning with those of the prime numbers 1, 2, 3, 5, 7, &c, in the first 100. And first, since 1024, 512, 256, 128, 64, 32, 16, 8, 4, 2, 1, are all in the continued proportion of 1000 to 500, therefore the proportion of 1024 to 1 is decuple of the proportion of 1000 to 500, and consequently the logarithm of 1 would be decuple of the logarithm of 500, if 0 were taken as the logarithm of 1024; but since the logarithm of 1024 is applied negatively, the logarithm of 1 must be diminished by as much: diminishing therefore 10 times the logarithm of 500, which is 693147.1928, by 2371.6526, the remainder 690775.5422 is the logarithm of 1, or of 100.00 what is set down in the table.

And because 1, 10, 100, 1000, are continued proportionals, therefore the proportion of 1000 to 1 is triple of the proportion of 1000 to 100, and consequently $\frac{1}{3}$ of the logarithm of 1 is to be put for the logarithm of 100, viz. 230258.5141, and this is also the logarithm of decuplication, or of the proportion of 10 to 1. And hence multiplying this logarithm of 100 successively by 2, 3, 4, 5, 6, and 7, there arise the logarithms to the numbers in the decuple proportion, as in the margin.

Also if the logarithm of duplication, or of the proportion of 2 to 1, be taken from the logarithm of 1, there will remain the logarithm of 2; and from the logarithm of 2 taking the logarithm of 10, there remains the logarithm of the proportion of 5 to 1; which taken from the logarithm of 1, there remains the logarithm of 5. See the margin.

For the logarithms of other prime numbers he has recourse to those of some of the first or greatest century of numbers, before found, viz. of 999, 998, 997, &c. And first, taking 960, whose logarithm is 4082.2001; then by adding to this logarithm the logarithm of duplication, there will arise the several logarithms of all these numbers, which are in duplicate proportion continued from 960, namely 480, 240, 120, 60, 30, 15. Hence the logarithm of 30 taken from the logarithm of 10, leaves the logarithm of the proportion of 3 to 1; which taken from the logarithm of 1, leaves the logarithm of 3, viz. 580914.3106. And the double of this diminished by the logarithm of 1, gives 471053.0790 for the logarithm of 9:

Next, from the logarithm of 990, or $9 \times 10 \times 11$, which is 1005.0331, he finds the logarithm of 11, namely, subtract the sum of the logarithms of 9 & 10 from the sum of the logarithm of 990 and double the logarithm of 1, there remains 450986.0106 the logarithm of 11.

Again, from the logarithm of 980, or $2 \times 10 \times 7 \times 7$, which is 2020.2711, he finds 496184.5228 for the logarithm of 7.

And from 5129.3303 the logarithm of 950 or $5 \times 10 \times 19$, he finds 396331.6392 for the logarithm of 19.

Nos.	Logarithms.
100	230258.5141
10	460517.0282
1	690775.5422
.1	921034.0563
.01	1151292.5703
.001	1381551.0844
.0001	1611809.5985

Log. of 1	690775.5422
of 2 to 1	693147.1928
log. of 2	621460.8229
log. of 10	460517.0281
of 5 to 1	160943.7948
log. of 5	529831.7474

In like manner the logarithm

to 998 or $4 \times 13 \times 19$, gives the logarithm of 13 ;
 to 969 or $3 \times 17 \times 19$, gives the logarithm of 17 ;
 to 986 or $2 \times 17 \times 29$, gives the logarithm of 29 ;
 to 966 or $6 \times 7 \times 23$, gives the logarithm of 23 ;
 to 930 or $3 \times 10 \times 31$, gives the logarithm of 31.

And so on for all the primes below 100, and for many of the primes in the other centuries up to 900. After which he directs to find the logarithms of all numbers composed of these, by the proper addition and subtraction of their logarithms, namely, in finding the logarithm of the product of two numbers, from the sum of the logarithms of the two factors take the logarithm of 1, the remainder is the logarithm of the product. In this way he shews that the logarithms of all numbers under 500 may be derived, except those of the following 36 numbers, namely 127, 149, 167, 173, 179, 211, 223, 251, 257, 263, 269, 271, 277, 281, 283, 293, 337, 347, 349, 353, 359, 367, 373, 379, 383, 389, 397, 401, 409, 419, 421, 431, 433, 439, 443, 449. Also besides the composite numbers between 500 and 900, made up of the products of some numbers whose logarithms have been before determined, there will be 59 primes not composed of them; which with the 36 above mentioned, make 95 numbers in all not composed of the products of any before them, and the logarithms of which he directs to be derived in this manner; namely, by considering the differences of the logarithms of the numbers interspersed among them; then by that method by which were constituted the differences of the logarithms of the smallest 100 numbers in a continued series, we are to proceed here in the discontinued series, that is, by prop. 27, corol. 3, and especially by the appendix to it, if it be rightly used, from whence those differences will be very easily supplied.

This closes the second part, or the actual construction of the logarithms; after which follows the table itself, which has been before described, pa. 31. Before I dismiss Kepler's work, however, it may not be improper in this place to take notice of an erroneous property laid down by him in the appendix to the 27th prop. just now referred to; both because it is an error in principal, tending to vitiate the practice, and because it serves to shew that Kepler was unacquainted with the true nature of the orders of differences of the logarithms, notwithstanding what he says above with respect to the construction of them by means of their several orders of differences, and that consequently he has no legal claim to any share in the discovery of the differential method, known at that time to Briggs, and it would seem to him alone, it being published in his logarithms in the same year 1624, as Kepler's book, together with the true nature of the logarithmic orders of differences, as we shall presently see in the following account of his works. Now this error of Kepler's, here alluded to, is in that expression where he says the third differences are in the *duplicate* ratio of the second differences, like as the second differences are in the duplicate ratio of the first; or, in other words, that the third differences are as the *squares* of the second differences, as well as the

ond differences as the squares of the first; or that the third
 ces are as the *fourth powers* of the first differences. Whereas
 the third differences are only as the *cubes* of the first differen-
 epler seems to have been led into this error by a mistake in his
 s, viz. when he says in that appendix, that *the third difference*
in which 20 is contained 16 times; for when the numbers are
 ely computed, the third difference comes out only 161, in
 therefore 20 is contained only 8 times, which is the cube of
 number of times the one first difference contains the other.
 d hence seem that Kepler had hastily drawn the above errone-
 nciple from this one numerical example, or little more, false as
 or had he made the trial in many instances, although errone-
 omputed, they could not easily have been so uniformly so, as
 d the same false conclusion. And therefore from hence, and
 e says at the conclusion of that appendix, it may be infered
 : either never attempted the demonstration of the property in
 n, or else that he found himself embarrassed with it, and un-
 accomplish it, and therefore dispatched it in the ambiguous
 - in which it appears.

it may easily be shewn, not only that the third differences of the
 rms at different places, are as the cubes of the first differences;
 general, that the numbers in any one and the same order of
 ces, at different places, are as that power of the numbers in
 t differences, whose index is the same as that of the order; or
 ne second, third, fourth, &c, differences, will be as the se-
 third, fourth, &c, powers of the first differences. For the
 orders of differences, when the absolute numbers differ by
 itely small parts, are as the several orders of fluxions of the
 hms; but if x be any number, then $\frac{m \dot{x}}{x}$ is the fluxion of the
 hm of x , to the modulus m , and the second fluxion, or the flux-
 this fluxion, is $-\frac{m \dot{x}^2}{x^2}$, since \dot{x} is constant; and the third,

&c, fluxions, are $\frac{2m \dot{x}^3}{x^3}$, $-\frac{2.3m \dot{x}^4}{x^4}$, &c; that is, the first, se-
 third, fourth, fifth, sixth, &c, orders of fluxions, are equal to
 dulus m multiplied into each of these terms, $\frac{\dot{x}}{x}$, $-\frac{1 \dot{x}^2}{x^2}$, $\frac{1.2 \dot{x}^3}{x^3}$,
 $\frac{3 \dot{x}^4}{x^4}$, $\frac{1.2.3.4 \dot{x}^5}{x^5}$, $-\frac{1.2.3.4.5 \dot{x}^6}{x^6}$, &c, where it is evident
 e fluxion of any order, is as that power of the first fluxion, whose
 s the same as the number of the order. And these quantities
 actually be the several terms of the differences themselves, if
 erences of the numbers were indefinitely small. But they vary
 re from them, as the differences of the absolute numbers differ
 , or as the said constant numerical difference 1, approaches
 s the value of x the number itself. However, upon the whole,
 eral orders vary proportionably, so as still sensibly to preserve
 I 2 the

the same analogy, namely that two n th differences are in proportion as the n th powers of their respective first differences.

Of Briggs's Construction of his Logarithms.

Nearly according to the methods described in page 47, Mr. Briggs constructed the logarithms of the prime numbers, as appears from his relation of this business in the *Arithmetica Logarithmica*, printed in 1624, where he details, in an ample manner, the whole construction and use of his logarithms. The work is divided into thirty-two chapters or sections. In the first of these, logarithms in a general sense are defined, and some properties of them illustrated. In the second chapter he remarks, that it is most convenient to make 0 the logarithm of 1; and on that supposition he exemplifies these following properties, namely, that the logarithms of all numbers are either the indices of powers, or proportional to them; that the sum of the logarithms of two or more factors, is the logarithm of their product; and that the difference of the logarithm of two numbers, is the logarithm of their quotient. In the third section he states the other assumption which is necessary to limit his system of logarithms, namely, making 1 the logarithm of 10, as that which produces the most convenient form of logarithms; He hence also takes occasion to shew that the powers of 10, namely 100, 1000, &c, are the only numbers which can have rational logarithms. The fourth section treats of the characteristic; by which name he distinguishes the integral, or first part, of a logarithm towards the left-hand, which expresses one less than the number of integer places or figures in the number belonging to that logarithm, or how far the first figure of this number is removed from the place of units; namely, that 0 is the characteristic of the logarithms of all numbers from 1 to 10; and 1 the characteristic of all those from 10 to 100; and 2 that of those from 100 to 1000; and so on.

He begins the fifth chapter with remarking, that his logarithms may chiefly be constructed by the two methods which were mentioned by Napier, as above related, and for the sake of which he here premises several *lemmata*, concerning the powers of numbers and their indices, and how many places or figures are in the products of numbers, observing that the product of two numbers will consist of as many figures as there are in both factors, unless perhaps the product of the first figures in each factor be expressed by one figure only, which often happens, and then commonly there will be one figure in the product less than in the two factors; as also that, of any two of the terms, in a series of geometricals, the results will be equal by raising each term to the power denoted by the index of the other; or any number raised to the power denoted by the logarithm of the other, will be equal to this latter number raised to the power denoted by the logarithm of the former; and consequently if the one number be 10, whose logarithm is 1 with any number of ciphers, then any number raised to the power whose index is 1000 &c, or the logarithm of 10, will be equal to 10 raised to the power whose index is the logarithm.

garithm of that number; that is, the logarithm of any number in this scale, where 1 is the logarithm of 10, is the index of that power of 10 which is equal to the given number. But the index of any integral power of 10, is one less than the number of places in that power, consequently the logarithm of any other number, which is no integral power of 10, is not quite one less than the number of places in that power of the given number whose index is 1.000 &c, or the logarithm of 10.

Find therefore the 10th, or 100th, or 1000th, &c, power of any number, as suppose 2, with the number of figures in such power; then shall that number of figures always exceed the logarithm of 2, altho' the excess will be constantly less than 1.

An example of this process is here given in the margin; where the 1st column contains the several powers of 2, the 2d their corresponding indices, and the 3d contains the number of places in the powers in the first column; and of these numbers in the third column, such as are on the lines of those indices that consist of 1 with ciphers, are continual approximations to the logarithm of 2, being always too great by less than 1 in the last figure, that logarithm being 30102999566398 &c.

And here since the exact powers of 2 are not required, but only the number of figures they consist of, as shewn by the third column, only a few of the first figures of the powers in the first column are retained, those being sufficient to determine the number of places in them; and the multiplications in raising these powers are performed in a contracted way, so as to have the fifth or last figure in them true to the nearest unit. Indeed these multiplications might be performed in the same manner, retaining only the first three figures, and those to the nearest unit in the third place; which would make this a very easy way indeed of finding the logarithms of a few prime numbers,

Powers of 2	Indices.	No. of places, or logs.
2	1	1
4	2	1
16	4	2
256	8	3
1024	10	4 log. of 2
10486	20	7 log. of 4
10995	40	13 log. of 16
12089	80	25 log. of 256
12676	100	31 log. of 2
16069	200	61 log. of 4
25823	400	121 log. 16
66680	800	241 log. 256
10715	1000	302 log. 2
11481	2000	603 log. 4
13182	4000	1205 log. 16
17377	8000	2409 l. 256
19950	10000	3011 log. 2
39803	20000	6021 log. 4
15843	40000	12042 log. 16
25099	80000	24083 l. 256
99900	100000	30103 log. 2
99801	200000	60206 l. 4
99601	400000	120412 &c
99204	800000	240824 &c
99006	1000000	301030
98023	2000000	602060
96085	4000000	1204120
92323	8000000	2408240
90498	10000000	3010300
81899	20000000	6020600
67075	40000000	12041200
44990	80000000	24082400
36846	100000000	30103000
13577	200000000	60206000
18433	400000000	120411999
33977	800000000	240823997
46129	1000000000	301029996

It may also be remarked, that those several powers, whose indices are 1 with ciphers, are raised by thrice squaring from the former powers, and multiplying the first by the third of these squares; making also the corresponding doublings and additions of their indices; thus, the square of 2 is 4, the square of 4 is 16, the square of 16 is 256, and 256 multiplied by 4 is 1024; in like manner, the double of 1 is 2, the double of 2 is 4, the double of 4 is 8, and 8 added to 2 makes 10. And the same for all the following powers and indices. The numbers in the third column, which shew how many places are in the corresponding powers in the first column, are produced in the very same way as those in the second column, namely, by three duplications and one addition; only observing to subtract 1 when the product of the first figures are expressed by one figure, or when the first figures exceed those of the number or power next above them. It may farther be observed that, like as the first number in each quaternion, or space of four lines or numbers, in the third column, approximates to the logarithm of 2, the first number in the first quaternion of the first column; so the second, third, and fourth terms of each quaternion in the third column, approximate to the logarithm of 4, 16, and 256, the second, third, and fourth numbers in the first quaternion of the first column. And moreover, by cutting off one, two, three, &c, figures, as the index or integral part, from the said logarithms of 2, 4, 16, and 256, the first, second, third and fourth numbers in the first quaternion of the first column, the remaining figures will be the decimal part of the logarithms of the corresponding first, second, third, and fourth numbers in the following second, third, fourth, &c, quaternions: the reason of which is, that any number of any quaternion in the first column, is the tenth power of the corresponding term in the next preceding quaternion. So that the third column contains the logarithms of all the numbers in the first column: A property which, if Dr. Newton had been aware of, he could not well have committed such gross mistakes as are found in a table of his similar to that above given, in which most of the numbers in the latter quaternions are totally erroneous; and his confused and imperfect account of this method, would induce one to believe that he did not well understand it.

In the sixth chapter our illustrious author begins to treat of the other general method of finding the logarithms of prime numbers, which he thinks is an easier way than the former, at least when the logarithm is required to a great many places of figures. This method consists in taking a great number of continued geometrical means between 1 and the given number whose logarithm is required; that is, first extracting the square root of the given number, then the root of the first root, the root of the second root, the root of the third root, and so on till the last root shall exceed 1 by a very small decimal, greater or less according to the intended number of places to be in the logarithm sought: Then finding the logarithm of this small number, by methods described below, he doubles it as often as he made extractions of the square root, or, which is the same thing, he multiplies

multiplies it by such power of 2 as is denoted by the said number of extractions, and the result is the required logarithm of the given number; as is evident from the nature of logarithms. The rule to know how far to continue this extraction of roots is, that the number of decimal places in the last root be double the number of true places required to be found in the logarithm, and that the first half of them be ciphers; the integer being 1: The reason of which is, that then the significant figures in the decimal, after the ciphers, are directly proportional to those in the corresponding logarithms; such figures in the natural number being the half of those in the next preceding number, like as the logarithm of the last number is the half of the preceding logarithm. Therefore, any one such small number, with its logarithm, being once found, by the continual extractions of square roots out of a given number, as 10, and corresponding bisections of its given logarithm 1; the logarithm for any other such small number, derived by like continual extractions from another given number, whose logarithm is sought, will be found by one single proportion: which logarithm is then to be doubled according to the number of extractions, or multiplied at once by the like power of 2, for the logarithm of the number proposed.

To find the first small number and its logarithm, our author begins with the number 10 and its logarithm 1, and extracts continually the root of the last number, and bisections its logarithm, as here registered in the margin, but to far

	10, given no.	1, its log.
1	3.162277 &c	0.5
2	1.778.79	0.25
3	1.333521	0.125
4	1.154781	0.0625
5	1.074607	0.03125
	&c.	&c.

more places of figures, till he arrives at the 53d and 54th roots, with their annexed logarithms, as here below:

	Numbers.	Logarithms.
53	1.00000,00000,00000,25563,82986,40064,70	0.00000,00000,00000,11102,23024,62515,65404
54	1.00000,00000,00000,12781,91493,20032,35	0.00000,00000,00000,05551,11512,31257,82702

where the decimals in the natural numbers are to each other in the ratio of the logarithms, namely in the ratio of 2 to 1: and therefore any other such small number being found, by continual extraction or otherwise, it will then be as 12781 &c, is to 5551 &c, so is that other small decimal, to the corresponding significant figures of its logarithm. But as every repetition of this proportion requires both a very long multiplication and division, he reduces this constant ratio to another equivalent ratio whose antecedent is 1, by which all the divisions are saved: thus,

as 12781 &c : 5551 &c :: 1000 &c : 434294481903251804,

that is, the logarithm of 1.00000,00000,00000,1

is 0.00000,00000,00000,04342,94481,90325,1804;

and therefore this last number being multiplied by any such small decimal, found as above by continual extraction, the product will be the corresponding logarithm of such last root.

But as the extraction of so many roots is a very troublesome operation, our author devises some ingenious contrivances to abridge that labour

labour. And first, in the 7th chapter, by the following device, to have fewer and easier extractions to perform: namely, raising the powers from any given prime number, whose logarithm is sought, till a power of it be found such that its first figure on the left hand is 1, and the next to it either one or more ciphers; then, having divided this power by 1 with as many ciphers as it has figures after the first, or supposing all after the first to be decimals, the continual roots from this power are extracted till the decimal become sufficiently small, as when the first fifteen places are ciphers; and then by multiplying the decimal by 43429 &c, we have the logarithm of this last root; which logarithm multiplied by the like power of the number 2, gives the logarithm of the first number from which the extraction was begun: to this logarithm prefixing a 1, or 2, or 3, &c, according as this number was found by dividing the power of the given prime number by 10, or 100, or 1000, &c; and lastly, dividing the result by the index of that power, the quotient will be the required logarithm of the given prime number. Thus, to find the logarithm of 2: it is first raised to the 10th power, as in the margin, before the first figures come to be 10; then, dividing by 1000, or cutting off for decimals all the figures after the first or 1, the root is continually extracted from the quotient 1,024, till the 47th extraction, which gives 1,00000,00000,00000,16851,60570,53949,77; the decimal part of which multiplied by 43429 &c, gives 0,00000,00000,00000,07318,55936,90623,9368 for its logarithm: and this being continually doubled for 47 times,

2	1
4	2
8	3
16	4
32	5
64	6
128	7
256	8
512	9
1024	10

will give the logarithms of all the roots up to the first number: or being at once multiplied by the 47th power of 2, viz. 140737488355328, which is raised as in the margin, it gives 0,01029,99566,39811,95265,27744 for the logarithm of the number 1,024, true to 17 or 18 decimals: to this prefix 3, so shall 3,0102 &c be the logarithm of 1024: and lastly, because 2 is the tenth root of 1024, divide by 10, so shall 0,30102,99956,63981,1952 be the logarithm required to the given number 2.

2	1
4	2
8	3
16	4
32	5
64	6
128	7
256	8
512	9
1024	10
1048576	20
1073741824	30
1099511627776	40
140737488355328	47

The logarithms of 1, 2, and 10 being now known; it is remarked that the logarithm of 5 becomes known; for since $10 \div 2 = 5$, therefore $\log. 10 - \log. 2 = \log. 5$, which is 0,69897,00043,36018,8058; and that from the multiplications and divisions of these three 2, 5, 10, with the corresponding additions and subtractions of their logarithms, a multitude of other numbers and their logarithms are produced; so from the powers of 2 are obtained 4, 8, 16, 32, 64, &c; from the powers of 5 these 25, 125, 625, 3125, &c; also the powers of 5 by those of 10 give 250, 1250, 6250, &c; and the powers of 2 by those of 10 give 20, 200, 2000, &c; 40, 400, 80, 800, &c; likewise by division are obtained $2\frac{1}{2}$, $1\frac{1}{2}$, $1\frac{1}{4}$, $6\frac{1}{2}$, $1\frac{3}{4}$, $3\frac{1}{2}$, $6\frac{3}{4}$, &c.

He then observes that the logarithm of 3, the next prime number, will be best derived from that of 6, in this manner: 6 raised to the 9th power becomes 10077696, which divided by 10000000, gives 1,0077696, and the root from this continually extracted till the 46th, is 1,00000,00000,00000,10998,59345,88155,71866; the decimal part of which multiplied by 43429 &c, gives 0,00000,00000,00000,04776,62844,78608,0304 for its logarithm; and this 46 times doubled, or multiplied by the 46th power of 2, gives 0,00336,12534,52792,69 for the logarithm of 1,0077696; to which adding 7, the logarithm of the divisor 10000000, and dividing by 9, the index of the power of 6, there results 0,77815,12503,83643,63 for the logarithm of 6; from which subtracting the logarithm of 2, there remains 0,47712,12547,19662,44 for the logarithm of 3.

In the eighth chapter our ingenious author describes an original and easy method of constructing, by means of differences, the continual mean proportionals which were before found by the extraction of roots. And this, with the other methods of generating logarithms by differences, in this book as well as in our author's *Trigonometria Britannica*, are I believe the first instances that are to be found of making such use of differences, and shew him to have been the inventor of what may be called the *Differential Method*. He seems to have discovered this method in the following manner: Having observed that these continual means between 1 and any number proposed, found by the continual extraction of roots, approach always nearer and nearer to the halves of each preceding root, as is visible when they are placed together under each other; and indeed it is found that as many of the significant figures of each decimal part, as there are ciphers between them and the integer 1, agree with the half of those above them; I say, having observed this evident approximation, he subtracted each of these decimal parts, which he called A or the first differences, from half the next preceding one, and by comparing together the remainders or second differences, called B, he found that the succeeding were always nearly equal to $\frac{1}{4}$ of the next preceding ones; then taking the difference between each second difference and $\frac{1}{4}$ of the preceding one, he found that these third differences, called C, were nearly in the continual ratio of 8 to 1; again taking the difference between each C and $\frac{1}{4}$ of the next preceding, he found that these fourth differences, called D, were nearly in the continual ratio of 16 to 1; and so on, the 5th (E), 6th (F), &c, differences, being nearly in the continual ratio of 32 to 1, of 64 to 1, &c: these

these plain observations being made, they very naturally and clearly suggested to him the notion and method of constructing all the remaining numbers from the differences of a few of the first, found by extracting the roots in the usual way. This will evidently appear from the annexed specimen of a few of the first numbers in the last example for finding the logarithm of 6; where after the 9th number the rest are supposed to be constructed from the preceding differences of each, as here shewn in the 10th and 11th. And it is evident that, in proceeding, the trouble will become always less and less, the differences gradually vanishing, till at last only the first differences remain. And that generally each less difference is shorter than the next greater, by as many places as there are ciphers at the beginning of the decimal in the number to be generated from the differences.

He then concludes this chapter with an ingenious, but not obvious, method of finding the differences B, C, D, E, &c, belonging to any number, as suppose the 9th, from that number itself, independent of any of the preceding 8th, 7th, 6th, 5th, &c; and it is this: Raise the decimal

1	1,00776,96	
2	1,00387,72833,36962,45663,84655,1	
3	1,00193,67661,36946,61675,87022,9	
4	1,00096,79146,39099,01728,89072,0	
5	1,00048,38402,68846,62985,49253,5	A
6	1,00024,18908,78824,68563,80872,7	A
	24,19201,34423,31492,74626,7	$\frac{1}{2}$ A
	292,55598,62928,93754,0	B
7	1,00012,09381,26397,13459,43919,4	A
	12,09454,39412,34281,90436,3	$\frac{1}{2}$ A
	73,13015,20822,46516,9	B
	73,13899,65732,23438,5	$\frac{1}{4}$ B
	884,44909,76921,5	C
8	1,00006,04672,35055,30968,01600,5	A
	6,04690,63198,56729,71959,7	$\frac{1}{2}$ A
	18,28143,25761,70359,2	B
	18,28253,82205,61629,2	$\frac{1}{4}$ B
	110,54443,91270,0	C
	110,55613,72115,2	$\frac{1}{8}$ C
	1169,80845,2	D
9	1,00003,02331,60505,05775,96479,4	A
	3,02336,17527,65484,00800,2	$\frac{1}{2}$ A
	4,57021,99708,04320,8	B
	4,57035,81440,42589,8	$\frac{1}{4}$ B
	13,81732,38269,0	C
	13,81805,48908,7	$\frac{1}{8}$ C
	73,10639,7	D
	73,11302,8	$\frac{1}{16}$ D
	663,1	E
10	1,00001,51164,65999,05672,95045,8	A
	1,51165,80252,82837,98239,7	$\frac{1}{2}$ A
	1,14253,77215,03190,9	B
	Hitherto the 1,14255,49927,01080,2	$\frac{1}{4}$ B
	smaller differences 1,72711,97889,3	C
	are found by sub- 1,72716,54783,6	$\frac{1}{8}$ C
	tracting the larger from 4,56894,3	D
	the parts of the like pre- 4,56915,0	$\frac{1}{16}$ D
	ceding ones. 20,7	E
	20,7	$\frac{1}{32}$ E
	Here the greater differences 65	$\frac{1}{64}$ E
	remain after subtracting 28555,89	$\frac{1}{128}$ E
	the smaller from the parts 28555,24	D
	of the difference of 21588,99736,16	$\frac{1}{8}$ C
	the next preceding 21588,71180,92	C
	number. 28563,44303,75797,72	$\frac{1}{4}$ B
	28563,22715,04616,80	B
	75582,32999,52836,47524,40	$\frac{1}{2}$ A
11	1,00000,75582,04436,30121,42907,60	A
	2	$\frac{1}{32}$ E
	1784,70	$\frac{1}{16}$ D
	1784,68	D
	2698,58897,62	$\frac{1}{8}$ C
	2698,57112,94	C
	7140,80678,76154,20	$\frac{1}{4}$ B
	7140,77980,19041,26	B
	37791,02218,15060,71453,80	$\frac{1}{2}$ A
	1,00000,37790,95077,37080,52412,54	A

$$B = \frac{1}{2}A^2,$$

$$C = \frac{1}{2}A^3 + \frac{1}{8}A^4,$$

$$D = \frac{7}{8}A^4 + \frac{7}{8}A^5 + \frac{7}{16}A^6 + \frac{1}{8}A^7 + \frac{7}{64}A^8,$$

$$E = \frac{25}{8}A^5 + 7A^6 + 10\frac{1}{8}A^7 + 12\frac{5}{16}A^8 + 11\frac{1}{8}A^9 + 7\frac{1}{16}A^{10},$$

$$F = \frac{13}{16}A^6 + 8\frac{1}{8}A^7 + 296\frac{7}{8}A^8 + 834\frac{1}{2}A^9 + 1953\frac{7}{8}A^{10} \&c.$$

$$G = 122\frac{1}{8}A^7 + 1510\frac{5}{16}A^8 + 11475\frac{7}{8}A^9 + 68372\frac{7}{8}A^{10} \&c.$$

$$H = 1937\frac{9}{16}A^8 + 47151\frac{9}{16}A^9 + 706845\frac{1}{4}A^{10} \&c.$$

$$I = 54902\frac{8}{16}A^9 + 2558465\frac{3}{8}A^{10} \&c.$$

$$K = 2805527A^{10} \&c.$$

&c.

Thus in the 9th number of the foregoing example, omitting the ciphers at the beginning of the decimals, we have

$$A = 1,51164,65999,05672,95048,8$$

$$A^2 = 2,28507,54430,06381,6726$$

$$A^3 = 3,45422,65239,48546,2$$

$$A^4 = 5,22156,97802,288$$

$$A^5 = 7,89316,8205$$

$$A^6 = 11,93168,1$$

&c.

Consequently

$$\frac{1}{2}A^2 = 1,14253,77215,03190,8363 = B$$

$$\frac{1}{2}A^3 = 1,72711,32619,74273$$

$$\frac{1}{8}A^4 = 65269,62225$$

$$\frac{1}{2}A^3 + \frac{1}{8}A^4 = 1,72711,97889,36498 = C$$

$$\frac{7}{8}A^4 = 4,56887,35577$$

$$\frac{7}{8}A^5 = 6,90652$$

$$\frac{7}{16}A^6 = 5$$

$$\frac{7}{8}A^4 + \frac{7}{8}A^5 + \frac{7}{16}A^6 = 4,56894,26234 = D$$

$$2\frac{5}{8}A^5 = 20,71957$$

$$7A^6 = 83$$

$$2\frac{5}{8}A^5 + 7A^6 = 20,72040 = E$$

which agree with the like differences in the foregoing specimen.

In the ninth chapter, after observing that from the logarithms of 1, 2, 3, 5, and 10, before found, are to be determined, by addition and subtraction, the logarithms of all other numbers which can be produced from these by multiplication and division; for finding the logarithms of other prime numbers, instead of that in the seventh chapter, our author then shews another ingenious method of obtaining numbers beginning with 1 and ciphers, and such as to bear a certain relation to some prime number by means of which its logarithm may be found. The method is this: Find three products having the common difference 1, and such that two of them are produced from factors having given logarithms, and the third produced from the prime number, whose logarithm is required, either multiplied by itself, or by some other number whose logarithm is given:

then the greatest and least of these three products being multiplied together, and the mean by itself, there arise two other products also differing by 1, of which the greater divided by the less, gives for a quotient 1 with a small decimal, having several ciphers at the beginning. Then the logarithm of this quotient being found as before, from thence will be deduced the required logarithm of the given prime number. Thus, if it be proposed to find the logarithm of the prime number 7; here $6 \times 8 = 48$, $7 \times 7 = 49$, and $5 \times 10 = 50$ will be the three products, of which the logarithms of 48 and 50, the 1st and 3d, will be given from those of their factors 6, 8, 5, 10; also $48 \times 50 = 2400$, and $49 \times 49 = 2401$ are the two new products, and $2401 \div 2400 = 1.00041\bar{3}$ their quotient: then the least of 44 means between 1 and this quotient is 1,00000,00000,00000,02367,98249,04333,6405, which multiplied by 43429 &c, produces 0,00000,00000,00000,01028,40172,88387,29715 for its logarithm; which being 44 times doubled, or multiplied by 17592186044416, produces 0,00018,09183,45421,30 for the logarithm of the quotient $1.00041\bar{3}$; which being added to the logarithm of the divisor 2400, gives the logarithm of the dividend 2401; then the half of this logarithm is the logarithm of 49 the root of 2401, and the half of this again gives 0,84509,80400,14256,82 for the logarithm of 7 which is the root of 49.—The author adds another example to illustrate this method; and then sets down the requisite factors, products, and quotients for finding the logarithms of all other prime numbers up to 100.

The 10th chapter is employed in teaching how to find the logarithms of fractions, namely by subtracting the logarithm of the denominator from that of the numerator, then the logarithm of the fraction is the remainder; which therefore is either abundant or defective, that is positive or negative, as the fraction is greater or less than 1.

In the 11th chapter we are shewn an ingenious contrivance for very accurately finding intermediate numbers to given logarithms, by the proportional parts. On this occasion it is remarked, that while the absolute numbers increase uniformly, the logarithms increase unequally, with a decreasing increment; for which reason it happens, that either logarithms or numbers corrected by means of the proportional parts, will not be quite accurate, the logarithms so found being always too small, and the absolute numbers so found too great; but yet so however as that they approach much nearer to accuracy towards the end of the table, where the increments or differences become much nearer to equality, than in the former parts of the table. And from this property our author, ever fruitful in happy expedients to obviate natural difficulties, contrives a device to throw the proportional part, to be found from the numbers and logarithms, always near the end of the table, in whatever part they may happen naturally to fall. And it is this: Rejecting the characteristic of any given logarithm, whose number is proposed to be found, take the arithmetical complement of the decimal part, by subtracting it from 1,000 &c, the logarithm of 10; then find in the table the logarithm next less than this arithmetical

metical complement, together with its absolute number; to this tabular logarithm add the logarithm that was given, and the sum will be a logarithm necessarily falling among those near the end of the table; find then its absolute number, corrected by means of the proportional part, which will not be very inaccurate, as falling near the end of the table; this being divided by the absolute number, before found for the logarithm next less than the arithmetical complement, the quotient will be the required number answering to the given logarithm; which will be much more correct than if it had been found from the proportional part of the difference where it naturally happened to fall: and the reason of this operation is evident from the nature of logarithms. But as this divisor, when taken as the number answering to the logarithm next less than the arithmetical complement, may happen to be a large prime number; it is farther remarked, that instead of this number and its logarithm, we may use the next less composite number which has small factors, and its logarithm; because the division by those small factors, instead of by the number itself, will be performed by the short and easy way of division in one line. And for the more easy finding proper composite numbers and their factors, our author here subjoins an abacus or list of all such numbers, with their logarithms and component factors, from 1000 to 10000; from which the proper logarithms and factors are immediately obtained by inspection. Thus, for example, to find the root of 10800, or the mean proportional between 1 and 10800: The logarithm of 10800 is 4,03342,37554,8695, the half of which is 2,01671,18777,4347 the logarithm of the number sought, the arithmetical complement of which logarithm is 0,98328,81222,5653; now the nearest logarithm to this in the abacus is 0,98227,12330,3957, and its annexed number is 9600, the factors of which are 2, 6, 8; to this last logarithm adding the logarithm of the number sought, the sum is 0,99898,31107,8304, whose absolute number, corrected by the proportional part, is 99766,12651,6521, which being divided continually by 2, 6, 8, the factors of 96, the last quotient is 103,92304845471; which is pretty correct, the true number being $103,923048454133 = \sqrt{10800}$.

We now arrive at the 12th and 13th chapters, in which our ingenious author first of all teaches the rules of the *Differential Method*, in constructing logarithms by interpolation from differences. This is the same method which has since been more largely treated of by later authors, and particularly by the learned Mr. Cotes in his *Cano-notectnia*. How Mr. Briggs came by it, does not well appear, as he only delivers the rules, without laying down the principles or investigation of them. He divides the method into two cases, namely when the second differences are equal or nearly equal, and when the differences run out to any length whatever. The former of these is treated in the 12th chapter; and he particularly adapts it to the interpolating 9 equidistant means between two given terms, evidently for this reason, that then the powers of 10 become the principal multipliers or divisors, and so the operations performed mentally. The substance of his process is this: Having given two absolute numbers

with

with their logarithms, to find the logarithms of 9 arithmetical means between the given numbers: Between the given logarithms take the 1st difference, as well as between each of them and their next or equidistant greater and less logarithms; and likewise the 2d differences, or the two differences of these three 1st differences; then if these 2d differences be equal, multiply one of them severally by the numbers 45, 35, &c, in the annexed tablet, dividing each product by 1000, that is cutting off three figures from each; lastly to $\frac{1}{10}$ of the 1st difference of the given logarithms add severally the first five quotients, and subtract the other five, so shall the ten results be the respective 1st differences to be continually added, to compose the required series of logarithms. Now this amounts to the same thing as what is at this day taught in the like case: we know that if A be any term of an equidistant series of terms, and $a, b, c, \&c$, the first of the 1st, 2d, 3d, &c, order of differences; then the term z , whose distance from A is expressed by x , will be thus, $z = A + xa + x \cdot \frac{x-1}{2} b + x \cdot \frac{x-1}{2} \cdot \frac{x-2}{3} c + \&c$. And if now, with our author, we make the 2d differences equal, then $c, d, e, \&c$, will all vanish or be equal to 0, and z will become barely

1	45	Additive products.
2	35	
3	25	
4	15	
5	5	
6	5	Subtractive products.
7	15	
8	25	
9	35	
10	45	

$$= A + xa + x \cdot \frac{x-1}{2} b,$$

Therefore if we take x successively equal to $\frac{1}{10}, \frac{2}{10}, \frac{3}{10}, \frac{4}{10}, \&c$, we shall have the annexed series of terms with their differences. Where it is to be observed, that our author had reduced the differences from the 1st to the 2d

Series of terms.	The Differences.
A	
$A + \frac{1}{10}a + \frac{1}{200}b$	$\frac{1}{10}a + \frac{1}{200}b = \frac{1}{10}a + \frac{45}{1000}b$
$A + \frac{2}{10}a + \frac{1}{60}b$	$\frac{2}{10}a + \frac{1}{60}b = \frac{2}{10}a + \frac{35}{1000}b$
$A + \frac{3}{10}a + \frac{1}{40}b$	$\frac{3}{10}a + \frac{1}{40}b = \frac{3}{10}a + \frac{25}{1000}b$
$A + \frac{4}{10}a + \frac{1}{30}b$	$\frac{4}{10}a + \frac{1}{30}b = \frac{4}{10}a + \frac{15}{1000}b$
$A + \frac{5}{10}a + \frac{1}{20}b$	$\frac{5}{10}a + \frac{1}{20}b = \frac{5}{10}a + \frac{5}{1000}b$
$A + \frac{6}{10}a + \frac{1}{16}b$	$\frac{6}{10}a - \frac{1}{16}b = \frac{6}{10}a - \frac{5}{1000}b$
$A + \frac{7}{10}a + \frac{1}{12}b$	$\frac{7}{10}a - \frac{1}{12}b = \frac{7}{10}a - \frac{15}{1000}b$
$A + \frac{8}{10}a + \frac{1}{10}b$	$\frac{8}{10}a - \frac{1}{10}b = \frac{8}{10}a - \frac{25}{1000}b$
$A + \frac{9}{10}a + \frac{1}{8}b$	$\frac{9}{10}a - \frac{1}{8}b = \frac{9}{10}a - \frac{35}{1000}b$
$A + a$	$\frac{10}{10}a - \frac{1}{8}b = \frac{10}{10}a - \frac{45}{1000}b$

form, as he thought it easier to multiply by 5 than to divide by 2. Also all the last terms ($x \cdot \frac{x-1}{2} b$) are set down positive, because in the logarithms b is negative.—If the two 2d differences be only nearly equal, take an arithmetical mean between them, and proceed with it the same as above with one of the equal 2d differences.—He also shews how to find any one single term, independent of the rest; and concludes the chapter with pointing out a method of finding the proportional part more accurately than before.

In the 13th chapter our author remarks, that the best way of filling up the intermediate chiliads of his table, namely from 20000 to 90000, is by quinquisection, or interposing four equidistant means between two given terms; the method of performing which he thus particularly describes. Of the given terms, or logarithms, and two or three others on each side of them, take the 1st, 2d, 3d, &c differences,

till the last differences come out equal, which suppose to be the 5th differences: divide the 1st differences by 5, the 2d by 25, the 3d by 125, the 4th by 625, and the 5th by 3125, and call the respective quotients the 1st, 2d, 3d, 4th, 5th *mean* differences; or, instead of dividing by these powers of 5, multiply by their reciprocals $\frac{1}{5}$, $\frac{1}{25}$, $\frac{1}{125}$, $\frac{1}{625}$, $\frac{1}{3125}$, that is multiplied by 2, 4, 8, 16, 32, cutting off respectively one, two, three, four, five figures from the end of the products, for the several mean differences: then the 4th and 5th of these mean differences are sufficiently accurate, but the 1st, 2d, and 3d are to be corrected in this manner; from the mean third differences subtract three times the 5th difference, and the remainders are the *correct* 3d differences; from the mean 2d differences subtract double the 4th differences, and the remainders are the correct 2d differences; lastly from the mean 1st differences take the correct 3d differences, and $\frac{1}{5}$ of the 5th difference, and the remainders will be the correct first differences. Such are the corrections when the differences extend as far as the 5th. However in completing those chiliads in this way, there will be only 3 orders of differences, as neither the 4th nor 5th will enter the calculation, but will vanish through their smallness: therefore the mean 2d and 3d difference will need no correction, and the mean first differences will be corrected by barely subtracting the 3d from them. These preparatory numbers being thus found, all the 2d differences of the logarithms required, will be generated by adding continually, from the less to the greater, the constant 3d difference; and the series of 1st differences will be found by adding the several 2d differences; and lastly by adding continually these 1st differences to the 1st given logarithm &c, the required logarithmic terms will be generated.

These easy rules being laid down, Mr. Briggs next teaches how by them the remaining chiliads may best be completed: namely, having here the logarithm for all numbers up to 20000, find the logarithm to every 5 beyond this, or of 20005, 20010, 20015, &c, in this manner; to the logarithms of the 5th part of each of those, namely 4001, 4002, 4003, &c, add the constant logarithm of 5, and the sums will be the logarithms of all the terms of the series 20005, 20010, 20015, &c: and these logarithms will have the very same differences as those of the series 4001, 4002, 4003, &c; by means of which therefore interpose 4 equidistant terms by the rules above; and thus the whole canon will be easily completed.

He here also extends the rules for correcting the mean differences in quinquisection, as far as the 20th difference; he also lays down similar rules for trisection, and speaks of general rules for any other section, but omitted as being less easy. So that he appears to have been possessed of all that Cotes afterwards delivered in his *Cano-notectnia sive Constructio Tabularum per Differentias*, drawn from the *Differential Method*, as their general rules exactly agree, Briggs's mean and correct differences being by Cotes called round and quadrat differences, because he expresses them by the numbers 1, 2, 3, &c, written respectively in a small circle and square.

Mr.

Mr. Briggs also observes that the same rules equally apply to the construction of equidistant terms of any other kind, such as sines, tangents, secants, the powers of numbers, &c: and farther remarks; that of the sines of three equidifferent arcs, all the remote differences may be found by the rule of proportion, because the sines and their 2d, 4th, 6th, 8th, &c differences are continued proportionals, as are also the 1st, 3d, 5th, 7th, &c differences among themselves; and like as the 2d, 4th, 6th, &c differences are proportional to the sines of the mean arcs, so also are the 1st, 3d, 5th, &c differences proportional to the cosines of the same arcs. Moreover with regard to the powers of numbers, he remarks the following curious properties; 1st, that they will each have as many orders of differences as are denoted by the index of the power, the squares having two orders of differences, the cubes three, the 4th powers four, &c: second, that the last differences will be all equal, and each equal to the common difference of the sides or roots raised to the given power and multiplied by $1 \times 2 \times 3 \times 4$ &c, continued to as many terms as there are units in the index; so if the roots differ by 1, the 2d difference of the squares will be each 1×2 or 2, the 3d differences of the cubes each $1 \times 2 \times 3$ or 6, the 4th differences of the 4th powers each $1 \times 2 \times 3 \times 4$ or 24, and so on; and if the common difference of the roots be any other number n , then the last differences of the squares, cubes, 4th powers, 5th powers, &c, will be respectively $2n^2$, $6n^3$, $24n^4$, $120n^5$, &c.

Besides what was shewn in the eleventh chapter concerning the taking out the logarithms of large numbers by means of proportional parts, he employs the next or 14th chapter in teaching how, from the first ten chiliads only, and a small table of one page, here given, to find the number answering to any logarithm, and the logarithm to any number consisting of fourteen places of figures. *

Having thus fully shewn the construction and chief properties of his logarithms, our ingenious author, in the remaining eighteen chapters, exemplifies their uses in various curious and important subjects; such as The Rule-of-three, or rule of proportion; finding

* It is no more than a large exemplification of this method of Briggs's that has been printed so late as 1771, in a 4to. tract by Mr. Rob. Flower, under the title of *The Radix, a New Way of making Logarithms*. Although Briggs's work might not be known to this writer.—Since this was written I have been favoured with the following anecdote, concerning Mr. Flower and his work, by the Rev. Dr. Horsley, the learned editor of the works of Sir I. Newton. "This Robert Flower was a very obscure, and probably an illiterate man. He was master of a writing school in the town of Bishop Stortford in Hertfordshire. He communicated his Radix, before he published it, to my late learned friend Math. Raper, Esq. of Thorley Hall. I was at Thorley at the time, upon a visit to my father, who was rector of the parish; and I well remember that Mr. Raper told me with great surprize, that Flower (who was known to us both by name as the writing-master of the neighbouring market town) had fallen upon Briggs's way of finding all logarithms from the first ten chiliads. And he was so well persuaded that Flower had made the discovery for himself, without any light from Briggs, that with his accustomed munificence he rewarded the man's ingenuity with a present of ten guineas; informing him I believe that his work had been done before, and dissuading the publication."

the roots of given numbers; finding any number of mean proportionals between two given terms; with other arithmetical rules: Also various geometrical subjects, as 1st, Having given the sides of any plane triangle, to find the area, perpendicular, angles, and diameters of the inscribed and circumscribed circles; 2d, In a right-angled triangle, having given any two of these, to find the rest, viz. one leg and the hypotenuse, one leg and the sum or difference of the hypotenuse and the other leg, the two legs, one leg and the area, the area and the sum or difference of the legs, the hypotenuse and sum or difference of the legs, the hypotenuse and area, and the perimeter and area; 3d, Upon a given base to describe a triangle equal and isoperimetrical to another triangle given; 4th, To describe the circumference of a circle so, that the three distances from any point in it to the three angles of a given plane triangle, shall be to one another in a given ratio; 5th, Having given the base, the area, and the ratio of the two sides of a plane triangle, to find the sides; 6th, Given the base, difference of the sides, and area of a triangle, to find the sides; 7th, To find a triangle whose area and perimeter shall be expressed by the same number; 8th, Of four given lines, of which the sum of any three is greater than the fourth, to form a quadrilateral figure about which a circle may be described; 9th, Of the diameter, circumference, and area of a circle, and the surface and solidity of the sphere generated by it, having any one given, to find any of the rest; 10th, Concerning the ellipse, spheroid, and gauging; 11th, To cut a line or a number in extreme and mean ratio; 12th, Given the diameter of a circle, to find the sides and areas of the inscribed and circumscribed regular figures of 3, 4, 5, 6, 8, 10, 12, and sixteen sides; 13th, Concerning the regular figures of 7, 9, 15, 24, and 30 sides; 14th, Of isoperimetrical regular figures; 15th, Of equal regular figures; and 16th, Of the sphere and the 5 regular bodies; which closes this introduction. Such of these problems as can admit of it, are determined by elegant geometrical constructions, and they are all illustrated by accurate arithmetical calculations performed by logarithms; for the exemplification of which they are purposely given.

At the end he remarks, that the chief and most necessary use of logarithms, is in the doctrine of spherical trigonometry, which he here promises to give in a future work, and which was accomplished in his *Trigonometria Britannica*, to the description of which we now proceed.

Of BRIGGS'S *Trigonometria Britannica*.

At the close of the account of writings on the natural sines, tangents, and secants, I omitted the description of this work of our learned author, although it is perhaps the greatest of this kind, all things considered, that ever was executed by one person; purposely reserving my account of it to this place, not only as it is connected with the invention and construction of logarithms, but thinking it

deserved more peculiar and distinguished notice, on account of the importance and originality of its contents. The division of the quadrant, and the mode of construction, are both new; and the numbers are far more accurate, and are extended to more places, than they had ever been before. The circular arcs had always been divided in a sexagesimal proportion; but here the quadrant is divided into degrees and decimals, as this is a much easier mode of computation than by 60ths; the division being compleated only to 100ths of degrees, though his design was to have extended it to 1000ths of degrees. And, besides his own private opinion, he was induced to adopt this method of decimal divisions, partly at the request of other persons, and partly perhaps from the authority of Vieta, pa. 29 *Calendarii Gregoriani*. And it is probable that computations by this decimal division would have come into general use, had it not been for the publication of Vlacq's tables, which were extended to every 10 seconds, or 6th parts of minutes. But besides this method by a decimal division of the degrees, of which the whole circle contains 360, or the quadrant 90, in the 14th chapter he remarks that some other persons were inclined rather to adopt a compleat decimal division of the whole circle, first into 100 parts, and each of these into 1000 parts; and for *their* sakes he subjoins a small table of the sines of every 40th part of the quadrant, and remarks that from these few the whole may be made out by continual quinquisections; namely, 5 times these 40 make 200, then 5 times these give 1000, thirdly 5 times these give 5000, and lastly 5 times these give 25000 for the whole quadrant, or 100000 for the whole circumference.

But to return. Our author's large table consists of natural sines to 15 places, natural tangents and secants each to 10 places, logarithmic sines to 14 places, and logarithmic tangents to 10 places, each besides the characteristic. A most stupendous performance! The table is preceded by an introduction, divided into two books, the one containing an account of the truly ingenious construction of the table, by the author himself; and the other its uses in trigonometry, &c, by Henry Gellibrand, professor of astronomy in Gresham College, who remarks in the preface that the work was composed by the author about the year 1600; though it was only published by the direction of Gellibrand in 1633, it having been printed at Gouda under the care of Vlacq, and by the printer of his *Trigonometria Artificialis*, which came out the same year.

After briefly mentioning the common methods of dividing the quadrant, and constructing the tables of sines, &c, from the ancients down to his own time, he hastens to the description of his own peculiar and truly ingenious method, which is briefly this: having first divided the quadrant into a small number of parts, as 72, he finds the sine of one of those parts, then from it the sines of the double, triple, quadruple, &c, up to the quadrant or 72 parts. He next quinquisects each of these parts, by interposing four equidistant means, by differences; he then quinquisects each of these; and finally each of these again; which compleats the division as far as degrees and centesims.

The

The rules for performing all these things, he investigates and illustrates in a very ample manner. In treating of multiple and submultiple arcs, he gives general algebraical expressions, for the sine or chord of any multiple whatever of a given arc, which he deduced from a geometrical figure, by finding the law for the series of successive multiple chords or sines, after the manner of Vieta, who was the first person that I know of, who laid down general rules for the chords of multiples and submultiples of arcs or angles: and the same was afterwards improved by Sir I. Newton, to such form, that radius, and double the cosine of the first given angle, are the first and second terms of all the proportions for finding the sines and cosines of the multiple angles. For assigning the coefficients of the terms in the multiple expressions, our author here delivers the construction of figurate or polygonal numbers, inserts a large table of them, and teaches their several uses; one of which is that every other number taken in the diagonal lines, furnishes the coefficients of the terms of the general equation by which the sines and chords of multiple arcs are expressed, which he amply illustrates; and another, that the same diagonal numbers constitute the coefficients of the terms of any power of a binomial; which property was also mentioned by Vieta in his *Angulares Sectiones*, theor. 6, 7; and this is the first mention I have seen made of this law of the coefficients of the powers of a binomial, commonly called Sir I. Newton's binomial theorem, although it is very evident that Sir Isaac was not the first inventor of it, the part of it properly belonging to him seems to be only the extending of it to fractional indices, which was indeed an immediate effect of the general method of denoting all roots like powers with fractional exponents, the theorem being not at all altered. However it appears that our author Briggs was the first who taught the rule for generating the coefficients of the terms, successively one from another, of any power of a binomial, independent of those of any other power. For having shewn, in his *Abacus Arithmetice* (which he so calls on account of its frequent and excellent use, and of which a small specimen is

ABACUS ΠΑΤΡΗΣΤΟΣ.							
H	G	F	E	D	C	B	A
—⑧	—⑦	+⑥	+⑤	—④	—③	+②	①
1	1	1	1	1	1	1	1
9	8	7	6	5	4	3	2
	36	28	21	15	10	6	3
		84	56	35	20	10	4
			126	70	35	15	5
				126	56	21	6
					84	28	7
						36	8
							9

here annexed,) that the numbers in the diagonal directions, ascending from right to left, are the coefficients of the powers of binomials, the

indices being the figures in the first perpendicular column A, which are also the coefficients of the 2d terms of each power (those of the first terms being 1, are here omitted;) and that any one of these diagonal numbers is in proportion to the next higher in the diagonal, as the vertical of the former is to the marginal of the latter, that is, as the uppermost number in the column of the former is to the first or right-hand number in the line of the latter; having shewn these things, I say, he thereby teaches the generation of the coefficients of any power, independently of all other powers, by the very same law or rule which we now use in the binomial theorem. Thus, for the 9th power; 9 being the coefficient of the 2d term, and 1 always that of the first, to find the 3d coefficient we have $2 : 8 :: 9 : 36$; for the 4th term, $3 : 7 :: 36 : 84$; for the 5th term, $4 : 6 :: 84 : 126$; and so on for the rest. That is to say, the coefficients of the terms in any power m , are inversely as the vertical numbers or first line 1, 2, 3, 4, m , and directly as the ascending numbers $m, m-1, m-2, m-3, 1$ in the first column A; and that consequently those coefficients are found by the continual multiplication of these fractions $\frac{m}{1}, \frac{m-1}{2}, \frac{m-2}{3}, \frac{m-3}{4}, \frac{1}{m}$, which is the very theorem as it stands at this day, and as applied by Newton to roots or fractional exponents, as it had before been used for integral powers. This theorem then being thus plainly taught by Briggs about the year 1600, I am surprised how a man of such general reading as Dr. Wallis was, could possibly be ignorant of it, as he plainly appears to be by the 85th chapter of his algebra, where he fully ascribes the invention to Newton, and adds that he himself had formerly sought after such a rule, but without success: Or how Mr. John Bernoulli, not half a century since, could himself first dispute the invention of this theorem with Newton, and then give the discovery of it to M. Pascal, who was not born till long after it had been taught by Briggs. See Bernoulli's *Works*, vol. 4 *pa.* 173. But I do not wonder that Briggs's remark was unknown to Newton, who owed almost every thing to genius, and very little to reading: and I have no doubt that he made the discovery himself, without any light from Briggs, and that he thought it was new for all powers in general, as it was indeed for roots and quantities with fractional and irrational exponents.

When the above table of the sums of figurate numbers is used by our author in determining the coefficients of the terms of the equation, whose root is the chord of any submultiple of an arc, as when the section is expressed by any uneven number, he remarks that the powers of that chord or root will be the 1st, 3d, 5th, 7th, &c, in the alternate uneven columns, A, C, E, G, &c, with their signs + or — as marked to the powers, continued till the highest power be equal to the index of the section; and that the coefficients of those powers are the sums of two continuous numbers in the same column with the powers, beginning with 1 at the highest power, and gradually descending one line obliquely to the right at each lower

lower power: so for a trisection, the numbers are 1 in C, and $1 + 2 = 3$ in A; and therefore the terms are $-1\textcircled{3} + 3\textcircled{1}$: for a quinquisection, the numbers are 1 in E, $1 + 4 = 5$ in C, $2 + 3 = 5$ in A; so that the terms are $1\textcircled{5} - 5\textcircled{3} + 5\textcircled{1}$: for a septisection, the numbers are 1 in G, $1 + 6 = 7$ in E, $4 + 10 = 14$ in C, and $3 + 4 = 7$ in A; and so the terms are $-1\textcircled{7} + 7\textcircled{5} - 14\textcircled{3} + 7\textcircled{1}$: and so on; the sum of all these terms being always equal to the chord of the whole or multiple arc. But when the section is denominated by an even number, the squares of the chords enter the equation instead of the first powers as before, and the dimensions of all the powers are doubled, the coefficients being found as before, and therefore the powers and numbers will be those in the 2d, 4th, 6th, &c, columns: and the uneven sections may also be expressed the same way: hence, for a bisection the terms will be $-1\textcircled{4} + 4\textcircled{2}$; for a trisection $1\textcircled{6} - 6\textcircled{4} + 9\textcircled{2}$; for the quadrisection $-1\textcircled{8} + 8\textcircled{6} - 20\textcircled{4} + 16\textcircled{2}$; for the quinquisection $1\textcircled{10} - 10\textcircled{8} + 35\textcircled{6} - 50\textcircled{4} + 25\textcircled{2}$; and so on.

Our author also sub-joins another table, a small specimen of which is here annexed, in which the first column consists of the uneven numbers, 1, 3, 5, &c, the rest being found by

F	E	D	C	B	A
$+6\textcircled{1}$	$+5\textcircled{1}$	$-4\textcircled{1}$	$-3\textcircled{1}$	$+2\textcircled{1}$	$1\textcircled{1}$
1	1	1	1	1	1
	7	6	5	4	3
		20	14	9	5
			39	16	7
				25	9
					11

addition as before, and the alternate diagonal numbers themselves are the coefficients.

The method is quite different from that of Vieta, who gives another table for the like purpose, a small part of which is here annexed, which is formed by adding from the number 2 downwards obliquely towards the right; and the coefficients of the terms stand upon the horizontal line.

1st	VIETA'S Table.				
2					
3	2d				
4	2				
5	5	3d			
6	9	2			
7	14	7	4th		
8	20	16	2		
9	27	30	9	5th	
10	35	50	25	2	6th

These angular sections were afterwards further discussed by Oughtred and Wallis. And the same theorems of Vieta and Briggs have been since given in a different form, by Messrs. Herman, and the Bernoullis, in the *Leipscic Acts*, and the *Memoirs of the Royal Academy of Sciences*. These theorems they expressed by the alternate terms of the power of a binomial, whose exponent is that of the multiple angle or section. And Mr. De Lagny, in the same Memoirs, first shewed that the tangents and secants of multiple angles are also expressed by the terms of a binomial, in the form of a fraction, of which some of those terms form the numerator, and others the denominator. Thus, if r express the radius, s the sine, c the cosine, t the tangent, and

CONSTRUCTION OF

and f the secant of the angle A ; then the sine, cosine, tangent, and secant of n times the angle, are expressed thus, *viz.*

$$\text{Sin. } nA = \frac{1}{r^{n-1}} \times \left\{ \frac{n}{1} c^{n-1} s - \frac{n \cdot n-1 \cdot n-2}{1 \cdot 2 \cdot 3} c^{n-3} s^3 + \frac{n \cdot n-1 \cdot n-2 \cdot n-3 \cdot n-4}{1 \cdot 2 \cdot 3 \cdot 4 \cdot 5} c^{n-5} s^5 \right.$$

$$\text{Cosine } nA = \frac{1}{r^{n-1}} \times \left\{ c^n - \frac{n \cdot n-1}{1 \cdot 2} c^{n-2} s^2 + \frac{n \cdot n-1 \cdot n-2 \cdot n-3}{1 \cdot 2 \cdot 3 \cdot 4} c^{n-4} s^4 \right\} \&c.$$

$$\text{Tang. } nA = r \times \frac{\frac{n}{1} r^{n-1} t - \frac{n \cdot n-1 \cdot n-2}{1 \cdot 2 \cdot 3} r^{n-3} t^3 + \frac{n \cdot n-1 \cdot n-2 \cdot n-3 \cdot n-4}{1 \cdot 2 \cdot 3 \cdot 4 \cdot 5} r^{n-5} t^5 \&c.}{r^n - \frac{n \cdot n-1}{1 \cdot 2} r^{n-2} t^2 + \frac{n \cdot n-1 \cdot n-2 \cdot n-3}{1 \cdot 2 \cdot 3 \cdot 4} r^{n-4} t^4 \&c.}$$

$$\text{Sec. } nA = r \times \frac{f^2 \text{ or } r^2 + t^2}{r^n - \frac{n \cdot n-1}{1 \cdot 2} r^{n-2} t^2 + \frac{n \cdot n-1 \cdot n-2 \cdot n-3}{1 \cdot 2 \cdot 3 \cdot 4} r^{n-4} t^4 \&c.}$$

where it is evident that the series in the sine of nA consists of the even terms of the power of the binomial $c+s$, and the series in the cosine of the uneven terms of the same power; also the series in the numerator of the tangent consists of the even terms of the power $r+t$, and the denominator, both of the tangent and secant, consists of the uneven terms of the same power $r+t$. And if the diameter, chord, and chord of the supplement, be substituted for the radius, sine and cosine, in the expressions for the multiple, sine and cosine, the result will give the chord and chord of the supplement of n times the arc or angle A . These and various other expressions for multiple and submultiple arcs, with other improvements in trigonometry, have also been given by Euler and other eminent writers on the subject.

The before mentioned M. De Lagny offered a project for substituting, instead of the common logarithms, a binary arithmetic, which he called the *natural logarithms*, and which he and M. Leibnitz seem to have both invented about the same time, independently of each other: but the project came to nothing. Mr. De Lagny also published, in several Memoirs of the Royal Academy, a new method of determining the angles of figures, which he called *Goniometry*. It consists in measuring with a pair of compasses the arc which subtends the angle in question; however this arc is not measured by applying its extent to any preconstructed scale, but by examining what part it is of half the circumference of the same circle, in this manner: from the proposed angular point as a center, with a sufficiently large radius, a semicircle being described, a part of which is the arc intercepted by the sides of the proposed angle, the extent of this arc is taken with a fine pair of compasses, and applied continually upon the arc of the semicircle, by which he finds how often it is contained in the semicircle, with usually a small arc remaining; in the same manner he measures how often this remaining arc is contained in the first arc, and what remains again is applied continually to the first remainder.

mainder, and so the 3d remainder to the 2d, the 4th to the 3d, and so on till there be no remainder, or else till it become insensibly small. By this process he obtains a series of quotients, or fractional parts, one of another, which being properly reduced into one, give the ratio of the first arc to the semicircumference, or of the proposed angle, to two right angles or 180 degrees, and consequently that angle in degrees, minutes, &c, if required, and that commonly to a degree of accuracy far exceeding the calculation of the same by means of any tables of sines, tangents or secants, notwithstanding the apparent paradox in this expression at first sight. Thus, if the 1st arc be 4 times contained in the semicircle, the remainder once contained in the first arc, the next five times in the second, and finally the fourth two times in the third: Here the quotients are 4, 1, 5, 2; consequently the fourth or last arc was $\frac{1}{5}$ the 3d, therefore the 3d was $\frac{1}{5 \frac{1}{2}}$ or $\frac{2}{1 \frac{1}{2}}$ of the 2d, and the 2d was $\frac{1}{1 \frac{2}{1 \frac{1}{2}}}$ or $\frac{1 \frac{1}{3}}{1 \frac{1}{2}}$ of the 1st, and the first or arc sought, was $\frac{1}{4 \frac{1 \frac{1}{3}}{1 \frac{1}{2}}}$ or $\frac{1 \frac{3}{8}}{3}$ of the semicircle; and consequently it contains $37 \frac{1}{7}$ degrees, or $37^{\circ} 8' 34'' \frac{2}{7}$.

But to return from this long digression, Mr. Briggs next treats of interpolation by differences, and chiefly of quinquisection, after the manner used in the 13th chapter of his construction of logarithms before described. He here proves that curious property of the sines and their several orders of differences, before mentioned, namely, that, of equidifferent arcs, the sines, with the 2d, 4th, 6th, &c differences, are continued proportionals; as also the cosines of the means between those arcs, and the 1st, 3d, 5th, &c differences. And to this treatise on interpolation by differences, he adds a marginal note, complaining that this 13th chapter of his *Arithmetica Logarithmica* had been omitted by Vlacq in his edition of it; as if he were afraid of an intention to deprive him of the honour of the invention of interpolation by successive differences. The note is this: *Modus correctionis à me traditus est Arithmeticae Logarithmicæ capite. 13, in editione Londinensi: Istud autem caput una cum sequenti in editione Batava me inconsulto et inscio omissum fuit: nec in omnibus, editionis illius author vir alioqui industrius et non indoctus meam mentem videtur assequutus: Ideoque ne quicquam desit cuiquam, qui integrum canonem conficere cupiat: quædam maximè necessaria illinc huc transferenda censui.*

A large specimen of quinquisection by differences is then given, and he shews how it is to be applied to the construction of the whole canon of sines, both for 100th and 1000th parts of degrees; namely, for centesms, divide the quadrant first into 72 equal parts, and find their sines by the primary methods; then these quinquisectioned give 360 parts, a second quinquisection gives 1800 parts, and a third gives 9000 parts, or centesms of degrees: but for millesms, divide the quadrant into 144 equal parts; then one quinquisection gives 720, a second gives 3600, a third 18000, and a fourth gives 90000 parts, or millesms.

He

He next proceeds to the natural tangents and secants, which are directed to be raised in the same manner, by interpolations from a few primary ones, constructed from the known proportions between sines, tangents, and secants; excepting that half the tangents and secants are to be formed by addition and subtraction only, by means of some such theorems as these, namely, 1st, the secant of an arc is equal to the sum of the tangent of the same arc, and the tangent of half its complement; which will find every other secant; 2d, double the tangent of an arc added to the tangent of half its complement, is equal to the tangent of the sum of that arc and the said half complement, by which rule half the tangents will be found; &c.

In the two remaining chapters of this book are treated the construction of the logarithmic sines, tangents, and secants. This is preceded by some remarks on the origin and invention of them. Our author here observes that logarithms may be of various kinds; that others had followed the plan of Baron Napier the first inventor, among whom Benjamin Urfinus is especially commended, who applied Napier's logarithms to every ten seconds of the quadrant; but that he himself, encouraged by the noble inventor, devised other logarithms that were much easier and more excellent*. He says he put 10, with ciphers, for the logarithm of radius; 9 for the logarithm sine of $5^{\circ} 44'$ whose natural sine is one 10th of the radius; 8 for that of $34'$, whose natural sine is one 100th of the radius, &c; thereby making 1 the logarithm of the ratio of 10 to 1, which is the characteristic of his species of logarithms.

To construct the logarithmic sines, he directs first to divide the quadrant into 72 equal parts as before, and to find the logarithms of their natural sines as in the 14th chapter of his *Arithmetica Logarithmica*; after which this number will be increased by quinquisection, first to 360, then to 1800, and lastly to 9000, or centesms of degrees. But if millesms of degrees be required, divide the quadrant first into 144 equal parts, and then by four quinquisections these will be extended to the following parts, 720, 3600, 18000, and 90000, or millesms of degrees. He remarks however that the logarithmic sines of only half the quadrant need be found in this manner, as the other half may be found by mere addition, or subtraction, by means of this theorem, as the sine of half an arc is to half radius, so is the sine of the whole arc to the cosine of the said half arc. This theorem he illustrates with examples, and then adds a table of the logarithmic sines of the primary 72 parts of the quadrant, from which the rest are to be made out by quinquisection.

In the next chapter our author shews the construction of the natural tangents and secants more fully than he had done before, demonstrating and illustrating several curious theorems for the easy finding of them. He then concludes this chapter, and the book, with

* His words are "Ego vero ipsius inventoris primi cohortatione adjutus, alios logarithmos applicandos censui, qui multo faciliorem usum habent, præstantiorem. Logarithmus radii circularis vel sinus totius, a me ponitur 10 &c."

pointing out the very easy construction of the logarithmic tangents and secants by means of these three theorems:

- 1st, As cosine : sine :: radius : tangent,
- 2d, As tangent : radius :: radius : cotangent,
- 3d, As cosine : radius :: radius : secant.

So that in logarithms, the tangents are found by subtracting the cosines from the sines, adding always 10 or the radius; the cotangents are found by subtracting always the tangents from 20 or double the radius; and the secants are found by subtracting the cosines from 20 the double radius.

The 2d book, by Gellibrand, contains the use of the canon in plane and spherical trigonometry.

Besides Briggs's methods of constructing logarithms, above described, no others were given about that time. For as to the calculations made by Vlacq, his numbers being carried to comparatively but few places of figures, they were performed by the easiest of Briggs's methods, and in the manner which this ingenious man had pointed out in his two volumes. Thus, the 70 chiliads of logarithms, from 20000 to 90000, computed by Vlacq, and published in 1628, being extended only to 10 places, yield no more than two orders of mean differences, which are also the correct differences, in quinquisection, and therefore will be made out thus, namely, one-fifth of them by the mere addition of the constant logarithm of 5; and the other four-fifths of them by two easy additions of very small numbers, namely, of the 1st and 2d differences, according to the directions given in Briggs's *Arith. Log.* c. 13. p. 31. And as to Vlacq's logarithmic sines and tangents to every 10 seconds, they were easily computed thus; the sines for half the quadrant were found by taking the logarithms to the natural sines in Rheticus's canon; and then from these the logarithmic sines to the other half quadrant were found by mere addition and subtraction; and from these all the tangents by one single subtraction. So that all these operations might easily be performed by one person, as quickly as a printer could set up the types; and thus the computation and printing might both be carried on together. And hence it appears that there is no reason for admiration at the expedition with which these tables were said to have been brought out.

Of certain Curves related to Logarithms.

About this time the mathematicians of Europe began to consider some curves which have properties analogous to logarithms. Edmund Gunter, it has been said, first gave the idea of a curve, whose abscisses are in arithmetical progression, while the corresponding ordinates are in geometrical progression, or whose abscisses are the logarithms of their ordinates; but I cannot find it noticed in any part of his writings. The same curve was afterwards considered by others, and named the *Logarithmic* or *Logistic* curve by Huygens in his *Dissertatio*

sertatio de Causa Gravitatis, where he enumerates all the principal properties of this curve, shewing its analogy to logarithms. Many other learned men have also treated of its properties; particularly Le Seur and Jacquier in their comment on Newton's *Principia*; Dr. John Kiell in the elegant little tract on logarithms subjoined to his edition of Euclid's *Elements*; and Francis Maseres, Esq. Curfitor Baron of the Exchequer, in his ingenious treatise on Trigonometry; in which books the doctrine of logarithms is copiously and learnedly treated, and their analogy to the logarithmic curve &c fully displayed. —It is indeed rather extraordinary that this curve was not sooner announced to the public; since it results immediately from baron Napier's manner of conceiving the generation of logarithms, by only supposing the lines which represent the natural numbers to be placed at right angles to that upon which the logarithms are taken. This curve greatly facilitates the conception of logarithms to the imagination, and affords an almost intuitive proof of the very important property of their fluxions, or very small increments, to wit, that the fluxion of the number is to the fluxion of the logarithm, as the number is to the subtangent; as also of this property, that, if three numbers be taken very nearly equal, so that their ratios to each other may differ but a little from a ratio of equality, as for example, the three numbers 10000000, 10000001, 10000002, their differences will be very nearly proportional to the logarithms of the ratios of those numbers to each other: all which follows from the logarithmic arcs being very little different from their chords, when they are taken very small. And the constant subtangent of this curve is what was afterwards by Cotes called the *Modulus* of the system of logarithms: and since, by the former of the two properties abovementioned, this subtangent is a 4th proportional to the fluxion of the number, the fluxion of the logarithm, and the number, this property afforded occasion to Mr. Baron Maseres to give the following definition of the modulus, which is the same in effect as Cotes's, but more clearly expressed, namely, that it is the limit of the magnitude of a 4th proportional to these three quantities, to wit, the difference of any two natural numbers that are very nearly equal to each other, either of the said numbers, and the logarithm or measure of the ratio they have to each other. Or we may define the modulus to be the natural number at that part of the system of logarithms, where the fluxion of the number is equal to the fluxion of the logarithm, or where the numbers and logarithms have equal differences. And hence it follows, that the logarithms of equal numbers or of equal ratios, in different systems, are to one another as the *moduli* of those systems. Moreover, the ratio whose measure or logarithm is equal to the modulus, and thence by Cotes called the *ratio modularis*, is by calculation found to be the ratio of 2.718281828459 &c to 1, or of 1 to .367879441171 &c; the calculation of which number may be seen at full length in Mr. baron Maseres's treatise on the Principles of Life-annuities, pa. 274 and 275.

The

The hyperbolic curve also afforded another source for developing and illustrating the properties and construction of logarithms. For the hyperbolic areas lying between the curve and one asymptote, when they are bounded by ordinates parallel to the other asymptote, are analogous to the logarithms of their abscisses or parts of the asymptote. And so also are the hyperbolic sectors; any sector bounded by an arc of the hyperbola and two radii, being equal to the quadrilateral space bounded by the same arc, the two ordinates to either asymptote from the extremities of the arc, and the part of the asymptote intercepted between them. And although Napier's logarithms are commonly said to be the same as hyperbolic logarithms, it is not to be understood that hyperbolas exhibit Napier's logarithms only, but indeed all other possible systems of logarithms whatever. For, like as the right-angled hyperbola, the side of whose square inscribed at the vertex is 1, gives us Napier's logarithms; so any other system of logarithms is expressed by the hyperbola whose asymptotes form a certain oblique angle, the side of the rhombus inscribed at the vertex of the hyperbola in this case also being still 1, the same as the side of the square in the right-angled hyperbola. But the areas of the square and rhombus, and consequently the logarithms of any one and the same number or ratio, will differ according to the sine of the angle of the asymptotes. And the area of the square or rhombus, or any inscribed parallelogram, is also the same thing as what was by Cotes called the modulus of the system of logarithms; which modulus will therefore be expressed by the numerical measure of the sine of the angle formed by the asymptotes, to the radius 1; as that is the same with the number expressing the area of the said square or rhombus, the side being 1: which is another definition of the modulus to be added to those we before remarked above in treating of the logarithmic curve. And the evident reason of this is, that in the beginning of the generation of these areas from the vertex of the hyperbola, the nascent increment of the abscisse drawn into the altitude 1, is to the increment of the area, as radius is to the sine of the angle of the ordinate and abscisse, or of the asymptotes; and at the beginning of the logarithms, the nascent increment of the natural numbers is to the increment of the logarithms, as 1 is to the modulus of the system. Hence we easily discover that the angle formed by the asymptotes of the hyperbola exhibiting Briggs's system of logarithms, will be 25 deg. 44 min. $25\frac{1}{2}$ sec. this being the angle whose sine is 0.4342944819 &c, the modulus of this system.

Or indeed any one hyperbola, as has been remarked by Mr. baron Maseres, will express all possible systems of logarithms whatever, namely, if the square or rhombus inscribed at the vertex, or, which is the same thing, any parallelogram inscribed between the asymptotes and the curve at any other point, be expounded by the modulus of the system; or, which is the same, by expounding the area, intercepted between two ordinates which are to each other in the ratio of 10 to 1, by the logarithm of that ratio in the proposed system.

As to the first remarks on the analogy between logarithms and the hyperbolic spaces; it having been shewn by Gregory St. Vincent, in his *Quadratura Circuli & Sectionum Coni*, published at Antwerp in 1647, that if one asymptote be divided into parts in geometrical progression, and from the points of division ordinates be drawn parallel to the other asymptote, they will divide the space between the asymptote and curve into equal portions; from hence it was shewn by Merfennus, that, by taking the continual sums of those parts, there would be obtained areas in arithmetical progression, adapted to abscisses in geometrical progression, and which therefore were analogous to a system of logarithms. And the same analogy was remarked and illustrated soon after by Huygens and many others, who shew how to square the hyperbolic spaces by means of the logarithms.

*Of *Gregory's Computation of Logarithms.*

On the other hand, Mr. James Gregory, in his *Vera Circuli and Hyperbolæ Quadratura*, first printed at Patavi, or Padua, in the year 1667, having approximated to the hyperbolic asymptotic spaces by means of a series of inscribed and circumscribed polygons, from thence shews how to compute the logarithms, which are analogous to those areas: and thus the quadrature of the hyperbolic spaces became the same thing as the computation of the logarithms. He here also lays down various methods to abridge the computation, with the assistance of some properties of numbers themselves, by which we are enabled to compose the logarithms of all prime numbers under 1000, each by one multiplication, two divisions, and the extraction of the square root. And the same subject is farther pursued in his *Exercitationes Geometricæ*, to be described hereafter.

There are also innumerable other geometrical figures having properties analogous to logarithms; such as the equiangular spiral, the figures of the tangents and secants, &c; which it is not to our purpose to distinguish more particularly.

Of †Mercator's Logarithmotechnia.

In 1668, Nicholas Mercator published his *Logarithmotechnia, sive methodus construendi Logarithmos nova, accurata, & facilis*; in which he delivers a new and ingenious method for computing the logarithms upon principles purely arithmetical; which being curious and very

* James Gregory was born at Aberdeen in Scotland 1639, where he was educated. He was professor of Mathematics in the college of St. Andrews; and died of a fever in December 1675, being only 36 years of age.

† Nicholas Mercator, a learned mathematician, and an ingenious member of the Royal Society, was a native of Holstein in Germany, but spent most of his time in England, where he died in the year 1690, at about 50 years of age. He was the author of many other works in Geometry, Geography, Astronomy, Astrology, &c.

accurately performed, I shall here give a rather full and particular account of that little tract, as well as of the small specimen of the quadrature of curves by infinite series subjoined to it; and more especially as this work gave occasion to the public communication of some of Sir Isaac Newton's earliest pieces, to evince that he had not borrowed them from this publication. So it appears that these two ingenious men had, independent of each other, in some instances fallen upon the same things.

Our author begins this work with remarking that the word *Logarithm* is composed of the words *ratio* and *number*, being as much as to say the *number of ratios*; which he observes is quite agreeable to the nature of them, for that a logarithm is nothing else but the number of *ratiunculae* contained in the ratio which any number bears to unity. He then makes a very learned and critical dissertation on the nature of ratios, their magnitude and measure, conveying a clearer idea of the nature of logarithms than had been given by either Napier or Briggs, or any other writer except the famous Kepler, in his work before described, although those other writers seem indeed to have had in their own minds the same ideas on the subject as Kepler and Mercator, but without having expressed them so clearly. Our author indeed pretty closely follows Kepler in his modes of thinking and expression, and after him in plain and express terms calls logarithms the measures of ratios; and, in order to the right understanding that definition of them, he explains what he means by the magnitude of a ratio. This he does pretty fully, but not too fully, considering the nicety and subtlety of the subject of ratios, their magnitude, with their addition to, and subtraction from, each other, which have been misconceived by very learned mathematicians, who have thence been led into considerable mistakes. Witness the oversight of Gregory St. Vincent, which Huygens animadverted upon in the *Exercitio Cyclometriae Gregorii a Sancto Vincentio*, and which arose from not understanding, or not adverting to, the nature of ratios, and their proportions one to another. And many other similar mistakes might here be adduced of other eminent writers. From all which we must commend the propriety of our author's attention, in so judiciously discriminating between the magnitude of a ratio, as of a to b , and the fraction $\frac{a}{b}$, or quotient arising from the division of one term of the ratio by the other; which latter method of consideration is always attended with danger of errors and confusion on the subject; though in the 5th definition of the 6th book of Euclid this quotient is accounted the quantity of the ratio; but this definition is probably not genuine, and therefore very properly omitted by professor Simson in his edition of the Elements. And in those ideas on the subject of logarithms, Kepler and Mercator have been followed by Halley, Cotes, and most other eminent writers since that time.

Purely from the above idea of logarithms, namely as being the measures of ratios, and as expressing the number of *ratiunculae* contained in any ratio, or into which it may be divided, the number of
the

the like equal *rationculæ* contained in some one ratio, as of 10 to 1, being supposed given, our author shews how the logarithm or measure of any other ratio may be found. But this however only by-the-bye, as not being the principal method he intends to teach, as his last and best, and which we arrive not at till near the end of the book, as we shall see below. Having shewn then, that these logarithms, or numbers of small ratios, or measures of ratios, may be all properly represented by numbers, and that of 1, or the ratio of equality, the logarithm or measure being always 0, the logarithm of 10, or the measure of the ratio of 10 to 1, is most conveniently represented by 1 with any number of ciphers; he then proceeds to shew how the measures of all other ratios may be found from this last supposition. And he explains the principles by the two following examples.

First, to find the logarithm of $100\cdot5^*$, or to find how many *rationculæ* are contained in the ratio of $100\cdot5$ to 1, the number of *rationculæ* in the decuple ratio, or ratio of 10 to 1, being 1,0000000.

The given ratio $100\cdot5$ to 1, he first divides into its parts, namely $100\cdot5$ to 100, 100 to 10, and 10 to 1; the last two of which being decuples, it follows that the characteristic will be 2, and it only remains to find how many parts of the next decuple belong to the first ratio of $100\cdot5$ to 100. Now if each term of this ratio be multiplied by itself, the products will be in the duplicate ratio of the first terms, or this last ratio will contain a double number of parts; and if these be multiplied by the first terms again, the ratio of the last products will contain three times the number of parts; and so on, the number of times of the first parts contained in the ratio of any like powers of the first terms, being always denoted by the exponent of the power. If therefore the first terms, $100\cdot5$ and 100, be continually multiplied till the same powers of them have to each other a ratio whose measure is known, as suppose the decuple ratio 10 to 1, whose measure is 1,0000000; then the exponent of that power shews what multiple this measure 1,0000000, of the decuple ratio, is of the required measure of the first ratio $100\cdot5$ to 100; and consequently dividing 1,0000000 by that exponent, the quotient is the measure of the ratio $100\cdot5$ to 100 sought. The operation for finding this, he sets down as here follows; where the several multiplications are all performed in the contracted way by inverting the figures of the multiplier, and retaining only the first number of decimals in each product.

power

* Mercator distinguishes his decimals from integers thus $100\lfloor 5$, or thus $100\lceil 5$.

100.5000	-	-	-	1	This power being greater than the decuple of the like power of 100, which must always be 1 with ciphers, resume therefore the 256th power, and multiply it, not by itself, but by the next before it, viz. by the 128th, thus	This being again too much, instead of the 16th, draw it into the 8th, or next preceding, thus
5001	-	-	-	1		
1005000						
5025						
1010025	-	-	-	2	3584985 - - 256 6043981 - - 128 6787831 - - 384 1106731 - - 64 9340130 - - 448 5303711 - - 32 10956299 - - 480	9340130 - - 448
5200101	-	-	-	2		6070401 - - 8
1010025						9720329 - - 456
10100						0510201 - - 4
20					Which power again exceeds the limit; therefore draw the 460th into the 1st thus	9916193 - - 460
5						5200101 - - 2
1020150	-	-	-	4		10015603 - - 462
0510201	-	-	-	4		
1020150					This power again exceeding the same power of 100 more than 10 times, I therefore draw the same 448th, not into the 32d, but the next preceding, thus	9916193 - - 460
20403						5001 - - 1
102						9965774 - - 461
51						
1040706	-	-	-	8	Since therefore the 462d power of 100.5 is greater, and the 461st power is less, than the decuple of the same power of 100; I find that the ratio of 100.5 to 100 is contained in the decuple more than 461 times, but less than 462 times. Again,	
6070401	-	-	-	8		
1083068	-	-	-	16		
8603801	-	-	-	16		
1173035	-	-	-	32	Since { 460 } power { 9916193 } and the differences the { 461 } is { 9965774 } 49581 { nearly { 462 } { 10015603 } 49829 { equal;	
5303711	-	-	-	32		
1376011	-	-	-	64		
1106731	-	-	-	64		
1893406	-	-	-	128	9340130 - - 448 8603801 - - 16 10115994 - - 464	
6043981	-	-	-	128		
3584985	-	-	-	256		
5894853	-	-	-	256		
1.852116	-	-	-	512		

Since { 460 } power { 9916193 } and the differences
the { 461 } is { 9965774 } 49581 { nearly
{ 462 } { 10015603 } 49829 { equal;
therefore the proportional part which the exact power, or 100000000, exceeds the next less 9965774, will be easily and accurately found by the Golden Rule, thus:

The just power - - - 10000000
and the next less - - - 9965774
the difference - - - 34226; then

As 49829 the dif. between the next less and greater,
; To 34226 the dif. between the next less and just,
; So is 10000: to 6868, the decimal parts; and therefore the ratio of 100.5 to 100, is 461.6868 times contained in the decuple or ratio of 10 to 1. Dividing now 1,0000000, the measure of the decuple ratio, by 461.6868, the quotient 00216597 is the measure of the ratio of 100.5 to 100; which being added to 2 the measure of 100

100 to 1, the sum 2,00216597 is the measure of the ratio of 100.5 to 1, that is the log. of 100.5 is 2,00216597.

In the same manner he next investigates the log. of 99.5, and finds it to be 1,99782307.

A few observations are then added, calculated to generalize the consideration of ratios, their magnitude and affections. It is here remarked that he considers the magnitude of the ratio between two quantities as the same, whether the antecedent be the greater or the less of the two terms: so the magnitude of the ratio of 8 to 5, is the same as of 5 to 8; that is by the magnitude of the ratio of either to the other, is meant the number of *rationunculae* between them, which will evidently be the same whether the greater or less term be the antecedent. And he farther remarks that of different ratios, when we divide the greater term of each ratio by the less, that ratio is of the greater mass or magnitude which produces the greater quotient, *et vice versa*; although those quotients are not proportional to the masses or magnitudes of the ratios. But when he considers the ratio of a greater term to a less, or of a less to a greater, that is to say, the ratio of greater or less inequality, as abstracted from the magnitude of the ratio, he distinguishes it by the word *affection*, as much as to say greater or less affection, something in the manner of positive and negative quantities, or such as are affected with the signs + and — The remainder of this work he delivers in several propositions, as follows.

Prop. 1. In subtracting from each other two quantities of the same affection, to wit, both positive, or both negative; if the remainder be of the same affection with the two given, then is the quantity subtracted the less of the two, or expressed by the less number; but if the contrary, it is the greater.

Prop. 2. In any continued ratios, as $\frac{a}{a+b}$, $\frac{a+b}{a+2b}$, $\frac{a+2b}{a+3b}$, &c, (by which is meant the ratios of a to $a+b$, $a+b$ to $a+2b$, $a+2b$ to $a+3b$, &c,) of equidifferent terms, the antecedent of each ratio being equal to the consequent of the next preceding one, and proceeding from less terms to greater; the measure of each ratio will be expressed by a greater quantity than that of the next following; and the same through all their orders of differences, namely, the 1st, 2d, 3d, &c, differences; but the contrary when the terms of the ratios decrease from greater to less.

Prop. 3. In any continued ratios of equidifferent terms, if the 1st or least be a , the difference between the 1st and 2d b , and c, d, e , &c, the respective first term of their 2d, 3d, 4th, &c, differences; then shall the several quantities themselves be as in the annexed scheme;

Scheme; where each term is computed of the first term together with as many of the differences as it is distant from the first term, and to those differences joining, for coefficients, the numbers in the slanting or oblique lines contained in the annexed table of figurate numbers, in the same manner, he observes, as the same figurate number completes the powers raised from a binomial root, as had long before been taught by others. He also remarks, that this rule not only gives any one term, but also the sum of any number of successive terms from the beginning, making the 2d coefficient the first, the 3d the 2d, and so on; thus, the sum of the first 5 terms is $5a + 10b + 10c + 5d + e$.

1st term	-	a
2d	-	$a + b$
3d	-	$a + 2b + c$
4th	-	$a + 3b + 3c + d$
5th	-	$a + 4b + 6c + 4d + e$
&c.		&c.

1	1	1	1	1	1	1	1	1
1	2	3	4	5	6	7	8	9
1	3	6	10	15	21	28	36	
1	4	10	20	35	56	84		
1	5	15	35	70	126			
1	6	21	56	126				
1	7	28	84					
1	8	36						
1	9							

In the 4th prop. it is shown that if the terms decrease, proceeding from the greater to the less, the same theorems hold good, by only changing the sign of every other term, as in the margin.

1st term	-	a
2d	-	$a - b$
3d	-	$a - 2b + c$
4th	-	$a - 3b + 3c - d$
5th	-	$a - 4b + 6c - 4d + e$
&c.		&c.

Prop. 6 and 7 treat of the approximate multiplication and division of ratios, or, which is the same thing, the finding nearly any powers or any roots of a given fraction, in an easy manner. The theorem for raising any power, when reduced to a simpler form, is this, the m power of $\frac{a}{b}$, or $\left(\frac{a}{b}\right)^m$ is $\frac{a^m}{b^m}$ nearly, where a is $a + b$, and $d = a - b$, the sum and difference of the two numbers,

and the upper or under sign take place according as $\frac{a}{b}$ is a proper or an improper fraction, that is according as a is less or greater than b . And the theorem for extracting the n th root of $\frac{a}{b}$ is $\sqrt[n]{\frac{a}{b}}$ or

$\sqrt[n]{\frac{a}{b}} = \frac{a^{\frac{1}{n}}}{b^{\frac{1}{n}}} = \frac{a^{\frac{1}{n}} + d}{m + d}$ nearly; which latter rule is also the same as the former, as will be evident by substituting $\frac{1}{m}$ instead of m in the last theorem.

So that universally $\sqrt[n]{\frac{a}{b}} = \frac{a^{\frac{1}{n}} + d}{m + d}$ nearly. These theo-

rems however are nearly true only in some certain cases, namely when $\frac{a}{b}$ and $\frac{m}{n}$ do not differ greatly from unity. And in the 7th *prop.* the author shews how to find nearly the error of the theorems.

In the 8th *prop.* it is shewn that the measures of ratios of equidifferent terms, are nearly reciprocally as the arithmetical means between the terms of each ratio. So of the ratios $\frac{16}{18}$, $\frac{33}{35}$, $\frac{50}{52}$, the mean between the terms of the first ratio is 17, of the 2d 34, of the 3d 51, and the measures of the ratios are nearly as $\frac{1}{17}$, $\frac{1}{34}$, $\frac{1}{51}$.

From this property he proceeds, in the 9th *prop.* to find the measure of any ratio less than $\frac{99.5}{100.5}$, which has an equal difference (1) of terms. In the two examples, mentioned near the beginning, our author found the logarithm or measure of the ratio, of $\frac{99.5}{100}$, to be $21769\frac{3}{10}$, and that of $\frac{100}{100.5}$ to be $21659\frac{7}{8}$; therefore the sum 43429 is the logarithm of $\frac{99.5}{100.5}$, or $\frac{99.5}{100} \times \frac{100}{100.5}$; or the logarithm of $\frac{99.5}{100.5}$ is nearer 43430, as found by other more accurate computations.—Now to find the logarithm of $\frac{100}{101}$, having the same difference of terms (1) with the former; it will be, by *prop.* 8, as 100.5 (the mean between 101 and 100) : 100 (the mean between 99.5 and 100.5) :: 43430 : 43213 the logarithm of $\frac{100}{101}$, or the difference between the logarithms of 100 and 101. But the log. of 100 is 2; therefore the logarithm of 101 is 2,0043213. — Again, to find the logarithm of 102, we must first find the logarithm of $\frac{101}{102}$; the mean between its terms being 101.5, therefore as 101.5 : 100 :: 43430 : 42788 the logarithm of $\frac{101}{102}$, or the difference of the logarithms of 101 and 102. But the logarithm of 101 was found above to be 2,0043213; therefore the logarithm of 102 is 2,0086001.—So that dividing continually 868596 (the double of 434298 the logarithm of $\frac{99.5}{100.5}$ or $\frac{100}{101}$) by each number of the series 201, 203, 205, 207, &c, then add 2 to the 1st quotient, to the sum add the 2d quotient, and so on, adding always the next quotient to the last sum, the several sums will be the respective logarithms of the numbers in this series 101, 102, 103, 104, &c.

The next, or *prop.* 10, shews that, of two pair of continued ratios whose terms have equal differences, the difference of the measures of the first two ratios, is to the difference of the measures of the other two, as the square of the common term in the two latter, is to that in the former, nearly. Thus, in the four ratios $\frac{a}{a+b}$, $\frac{a+b}{a+2b}$, $\frac{a+3b}{a+4b}$, $\frac{a+4b}{a+5b}$, as the measure of $\frac{aa+2ab}{a+b}^2$ (the difference of the first two, or the quotient of the two fractions) : the measure of $\frac{aa+8ab+15bb}{a+4b}^2$:: $a+4b^2$: $a+b^2$, nearly.

In *prop.* 11 the author shews that similar properties take place among two sets of ratios consisting each of 3 or 4 &c continued numbers.

Prop. 12 shews that, of the powers of numbers in arithmetical progression, the orders of differences which become equal, are the 2d differences in the squares, the 3d differences in the cubes, the 4th differences in the 4th powers, &c. And from hence it is shewn how to construct all those powers by the continual addition of their differences. As had been long before more fully explained by Briggs.

In the next, or 13th *prop.* our author explains his compendious method of raising the tables of logarithms, shewing how to construct the logarithms by addition only, from the properties contained in the 8th, 9th, and 12th propositions. For this purpose he makes use of the quantity $\frac{a}{b-c}$, which by division he resolves into this infinite se-

ries $\frac{a}{b} + \frac{ac}{bb} + \frac{ac^2}{b^3} + \frac{ac^3}{b^4}$ &c (*in infin.*) Putting then $a = 100$ the arithmetical mean between the terms of the ratio $\frac{99.5}{100.5}$, $b = 100000$, and c successively equal to 0.5, 1.5, 2.5, &c. that so $b-c$ may be respectively equal to 99999.5, 99998.5, 99997.5, &c, the corresponding means between the terms of the ratios $\frac{99999}{100000}$, $\frac{99998}{99999}$, $\frac{99997}{99998}$, &c, it is evident that $\frac{a}{b-c}$ will be the quotient of the 2d term divided by the 1st in the proportions mentioned in the 8th and 9th propositions; and when each of these quotients are found, it remains then only to multiply them by the constant 3d term 43429, or rather 43429.8, of the proportion, to produce the logarithms of the ratios

$\frac{99999}{100000}$, $\frac{99998}{99999}$, $\frac{99997}{99998}$, &c, till $\frac{10000}{10001}$; then adding these continually to 4 the logarithm of 10000 the least number, or subtracting them from 5 the logarithm of the highest term 100000, there will result the logarithms of all the absolute numbers from 10000 to 100000. Now when c is = 0.5, then

$$\frac{a}{b} = .001, \frac{ac}{bb} = .000000005, \frac{ac^2}{b^3} = .000000000000025, \frac{ac^3}{b^4} = .000000000000000125,$$

&c; therefore $\frac{a}{b-c} = \frac{a}{b} + \frac{ac}{bb} + \frac{ac^2}{b^3}$ &c is = .001000005000025000125,

In like manner, if $c = 1.5$, then $\frac{a}{b-c}$ will be = .001000015000225003375;

and if $c = 2.5$, then $\frac{a}{b-c}$ will be = .001000025000625015625;

&c. But instead of constructing all the values of $\frac{a}{b-c}$ in the usual way of raising the powers, he directs them to be found by addition

tion only, as in the last proposition. Having thus found all the values of $\frac{a}{b-c}$, the author then shews that they may be drawn into the constant logarithm 43429 by addition only, by the help of the annexed table of the first 9 products of it.

1	43429
2	86858
3	130287
4	173716
5	217145
6	260574
7	304003
8	347432
9	390861

The author then distinguishes which of the logarithms it may be proper to find in this way, and which from their component parts. Of these the logarithms of all even numbers need not be thus computed, being composed from the number 2; which cuts off one half of the numbers: neither are those numbers to be computed which end in 5, because 5 is one of their factors; these last are $\frac{1}{10}$ of the numbers; and the two together $\frac{1}{2} + \frac{1}{10}$ make $\frac{3}{5}$ of the whole: and of the other $\frac{2}{5}$, the $\frac{1}{3}$ of them, or $\frac{2}{15}$ of the whole, are composed of 3; and hence $\frac{3}{5} + \frac{2}{15}$, or $\frac{11}{15}$ of the numbers, are made up of such as are composed of 2, 3, and 5. As to the other numbers which may be composed of 7, of 11, &c; he recommends to find *their* logarithms in the general way, the same as if they were incompounds, as it is not worth while to separate them in so easy a mode of calculation. So that of the 90 chiliads of numbers from 10000 to 100000, only 24 chiliads are to be computed. Neither indeed are all of these to be calculated from the foregoing series for $\frac{a}{b-c}$, but only a few of them in that way, and the rest by the proportion in the 8th proposition. Thus having computed the logarithms of 10003 and 10013, omitting 10023 as being divisible by 3, estimate the logarithms of 10033 and 10043, which are the 30th numbers from 10003 and 10013; and again omitting 10053, a multiple of 3, find the logarithms of 10063 and 10073. Then by prop. 8,

As 10048, the arithmetical mean between 10033 and 10063,
to 10018, the arithmetical mean between 10003 and 10033,
so 13006, the difference between the logarithms of 10003 and 10033,
to 12967, the difference between the logarithms of 10033 and 10063;

That is, 1st - - - As $\begin{Bmatrix} 10048 \\ 10078 \\ 10108 \end{Bmatrix}$: 10018 :: 13006 : $\begin{Bmatrix} 12967 \\ \&c. \end{Bmatrix}$

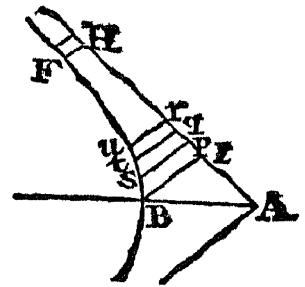
Again, As $\begin{Bmatrix} 10058 \\ 10088 \\ 10118 \end{Bmatrix}$: 10028 :: 12992 : $\begin{Bmatrix} 12953 \\ \&c. \end{Bmatrix}$

And 3dly, As $\begin{Bmatrix} 10068 \\ 10098 \\ \&c \end{Bmatrix}$: 10038 :: 12979 : $\begin{Bmatrix} 12940 \\ \&c. \end{Bmatrix}$

And with this our author concludes his compendium for constructing the tables of logarithms.

He afterwards shews some applications and relations of the doctrine of logarithms to geometrical figures: in order to which, in
prop.

prop. 14 he proves algebraically that, in the right-angled hyperbola, if from the vertex and from any other point there be drawn BI, FH perpendicular to the asymptote AH, or parallel to the other asymptote; then will $AH : AI :: BI : FH$. And



In prop. 15, if $AI = BI = 1$, and $HI = a$; then will $H = \frac{1}{1+a} = 1 - a + a^2 - a^3 + a^4 - a^5 \&c$ in infinitum,

by a continual algebraic division, the process of which he describes step by step as a thing that was new or uncommon. But that method of division had been taught before by Dr. Willis in his *Opus arithmeticum*.

Prop. 16 is this: Any given number being supposed to be divided to innumerable small equal parts, it is required to assign the sum of any powers of the continual sums of those innumerable parts. For which purpose he lays down this rule; if the next higher power of the given number, above that power whose sum is sought, be divided by its exponent, the quotient will be the sum of the powers sought. That is, if N be the given number, and a one of the innumerable equal parts, then will

$$+2a^n + 3a^n + 4a^n \&c \dots N^n \text{ be } = \frac{N^{n+1}}{n+1} : \text{ which theorem he demonstrates by a method of induction.}$$

And this, it is evident, is the finding the sum of any powers of an infinite number of arithmeticals, of which the greatest term is a given quantity, and the least indefinitely small. It is also remarkable that the above expression is similar to the rule for finding the fluent to the given fluxion of a power, as afterwards taught by Sir I. Newton.

Our author then applies this rule in prop. 17, to the quadrature of the hyperbola. Thus, putting $AI = 1$, conceive the asymptote to be divided from 1 into innumerable equal parts, namely $lp = pq = qr = a$; then, by the 14th and 15th,

$$\begin{aligned} &= 1 - a + a^2 - a^3 \&c \\ &= 1 - 2a + 4a^2 - 8a^3 \&c \\ &= 1 - 3a + 9a^2 - 27a^3 \&c \end{aligned} \left. \begin{array}{l} \\ \\ \end{array} \right\} \text{ But the area } BIru \text{ is } = \text{the sum } ps + qt + ru, \text{ which is } =$$

$3 - 6a + 14a^2 - 36a^3 \&c$, that is, equal to the number of terms contained in the line Ir , minus the sum of those terms, plus the sum of the squares of the same, minus the sum of their cubes, plus the sum of the 4th powers, &c. Putting now $IA = 1$, as before, and $= 0.1$ the number of terms, to find the area $Blps$; by prop. 16 the

sum of the terms will be $\frac{0.1^2}{2} = .005$, the sum of their squares $= .00333333$, the sum of their cubes $= .000025$, the sum of the 4th powers $= .000002$, the sum of the 5th powers $= .000000166$, the sum of the 6th powers $= .000000014$, &c. Therefore the area $Blps$ is $1 - .005 + .00333333 - .000025 + .000002 - .000000166 + .000000014 \&c. = .998333347 - .005025166 = .993308181 \&c$.

Again, putting $lq = .21$ the number of terms, he finds in like manner the area $Blqt = .21 - .02205 + .003087 - .000486202 + .000081682$

$\cdot 000081682 - \cdot 000014294 + \cdot 000002572 - \cdot 000000472 +$
 $\cdot 000000088 \&c = \cdot 213171345 - \cdot 022550984 = \cdot 190620361 \&c.$

He then adds, hence it appears that, as the ratio of AI to Ap, or 1 to 1.1, is half or subduplicate of the ratio of AI to Aq, or 1 to 1.21, so the area BIps is here found to be half of the area BIqt. These areas he computes to 44 places of figures, and finds them still in the ratio of 2 to 1.

The foregoing doctrine amounts to this, that if the rectangle BI \times Ir, which in this case is expressed by Ir only, be put $= A$, AI being $= 1$ as before; then the area BIru, or the hyperbolic logarithm of $1 + A$, or of the ratio of 1 to $1 + A$, will be equal to the infinite series $A - \frac{1}{2}A^2 + \frac{1}{3}A^3 - \frac{1}{4}A^4 + \frac{1}{5}A^5 \&c$; and which therefore may be considered as Mercator's quadrature of the hyperbola, or his general expression of an hyperbolic logarithm in an infinite series. And this method was farther improved by Dr. Wallis in the *Philos. Transf.* for the year 1668.

In *prop.* 18 our author compares the hyperbolic *areolæ* with the *ratiunculæ* of equidifferent numbers, and observes that the areola BIps is the measure of the ratiuncula of AI to Ap, the areola spqt is the measure of the ratiuncula of AI to Aq, the areola tqru is the measure of the ratiuncula of Aq to Ar, &c.

Finally, in the 19th *prop.* he shews how the sums of logarithms may be taken after the manner of the sums of the *areolæ*. And from hence infers as a corollary, how the continual product of any given numbers in arithmetical progression may be obtained: for the sum of the logarithms is the logarithm of the continual product. He then remarks that from the premises it appears in what manner Mercennus's problem may be resolved, if not geometrically, at least in figures to any number of places. And thus closes this ingenious tract.

In the *Philos. Transf.* for 1668 are also given some farther illustrations of this work by the author himself. And in various places also in a similar manner are logarithms and hyperbolic areas treated of by Lord Brouncker, Dr. Wallis, Sir I. Newton, and many other learned persons.

Of Gregory's Exercitationes Geometricæ.

In the same year 1668 came out Mr. James Gregory's *Exercitationes Geometricæ*, in which are contained

- 1, Appendicula ad veram circuli et hyperbolæ quadraturam:
- 2, N. Mercatoris quadratura hyperbolæ geometricè demonstrata:
- 3, Analogia inter lineam meridianam planisphærii nautici et tangentes artificiales geometricè demonstrata; seu quod secantium naturalium additio efficiat tangentes artificiales:
- 4, Item, quot tangentium naturalium additio efficiat secantes artificiales:
- 5, Quadratura conchoidis:
- 6, Quadratura cissoidis: &

7. Metho-

7, Methodus facilis et accurata componendi secantes et tangentes artificiales.

The first of these pieces, or the *Appendicula*, contains some farther extension and illustration of his *Vera circuli et hyperbolæ quadratura*, occasioned by the animadversions made on that work by the famous mathematician and philosopher Huygens.

In the 2d is demonstrated geometrically the quadrature of the hyperbola, by which he finds a series similar to Mercator's for the logarithm, or the hyperbolic space beyond the first ordinate (BI, *fig. pa.* 92.) In like manner he finds another series for the space at an equal distance within that ordinate. These two series having all their terms alike, but all the signs of the one plus, and those of the other alternately plus and minus, by adding the two together, every other term is cancelled, and the double of the rest denotes the sum of both spaces. He then applies these properties to the logarithms; the conclusion from all which may be thus briefly expressed:

$$\text{since } A - \frac{1}{2}A^2 + \frac{1}{3}A^3 - \frac{1}{4}A^4 \&c. = \text{the log. of } \frac{1+A}{1-A},$$

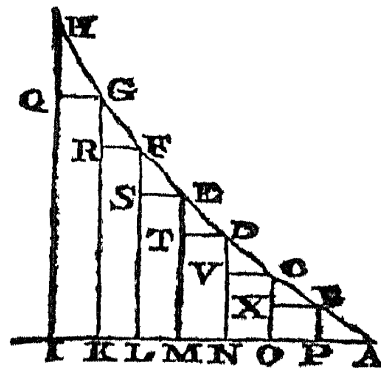
$$\text{and } A + \frac{1}{2}A^2 + \frac{1}{3}A^3 + \frac{1}{4}A^4 \&c. = \text{the log. of } \frac{1}{1-A},$$

therefore $2A + \frac{2}{3}A^3 + \frac{2}{5}A^5 + \frac{2}{7}A^7 \&c. = \text{the log. of } \frac{1+A}{1-A}$, or of the ratio of $1-A$ to $1+A$. Which may be accounted Mr. James Gregory's method of making logarithms.

The remainder of this little volume is chiefly employed about the nautical meridian, and the logarithmic tangents and secants. It does not appear by whom, nor by what accident, was discovered the analogy between a scale of logarithmic tangents and Wright's protraction of the nautical meridian line, which consisted of the sums of the secants. It appears however to have been first published, and introduced into the practice of navigation, by Mr. Henry Bond, who mentions this property in an edition of Norwood's *Epitome of Navigation*, printed about 1645; and he again treats of it more fully in an edition of Gunter's works printed in 1653, where he teaches, from this property, to resolve all the cases of Mercator's sailing by the logarithmic tangents, independent of the table of meridional parts. This analogy had only been found to be nearly true by trials, but not demonstrated to be a mathematical property. Such demonstration seems to have been first discovered by Mr. Nicholas Mercator, who, desirous of making the most advantage of this and another concealed invention of his in navigation, by a paper in the *Philos. Trans.* for June 4, 1666, invites the public to enter into a wager with him on his ability to prove the truth or falsehood of the supposed analogy. This mercenary proposal however seems not to have been taken up by any one, and Mercator reserved his demonstration. The proposal however excited the attention of mathematicians to the subject itself, and a demonstration was not long wanting. The first was published about two years after by Gregory in the tract now under consideration, and from thence and other

other similar properties here demonstrated, he shews in the last article how the tables of logarithmic tangents and secants may easily be computed from the natural tangents and secants. The substance of which is as follows :

Let AI be the arc of a quadrant extended in a right line, and let the figure AHI be composed of the natural tangents of every arc from the point A erected perpendicular to AI at their respective points : let AP, PO, ON, NM, &c, be the very small equal parts into which the quadrant is divided, namely, each $\frac{1}{80}$, or $\frac{1}{180}$ of a degree, draw PB, OC, ND, ME, &c perpendicular to AI. Then it is manifest from what had been monstrated, that the figures ABP, ACO, &c are the artificial secants of the arcs AP, AO, &c, putting o for the artificial radius. It is also manifest that the rectangles BO, CN, DM, &c will be found from the multiplication of the small part AP of the quadrant by each natural tangent. But, he proceeds, there is a little more difficulty in measuring the figures ABP, BCX, CDV, &c; for if the first differences of the tangents be equal, AB, BC, CD, &c will not differ from right lines, and then the figures ABP, BCX, CDV, &c will be right-angled triangles, and therefore any one, as HQG, will be $= \frac{1}{2}QH \times QG$: but if the second differences be equal, the said figures will be portions of trilineal quadratics, for example HQG will be a portion of a trilineal quadratrix, whose axis is parallel to QH; and each of the last differences being Z, it will be $QH \times G = \frac{1}{2}QH \times QG - \frac{1}{12}Z \times QG$: and if the 3d differences be equal, the said figures will be portions of trilineal cubics, and then shall $QH \times G$ be equal $\frac{1}{2}QH \times QG - \sqrt{\frac{1}{72}QH \times Z \times QG^2 - \frac{1}{1728}Z^2 \times QG^3}$: when the 4th differences are equal, the said figures are portions of trilineal quadrato-quadratics, and the 4th differences are equal to 24 times the 4th power of QG divided by the cube of the latus rectum; also when the 5th differences are equal, the said figures are portions of trilineal surfolids, and the 5th differences are equal to 120 times the surfolid of QG divided by the 4th power of the latus rectum; and so on *in infinitum*. What has been here said of the composition of artificial secants from the natural tangents, it is remarked, may in like manner be understood of the composition of artificial tangents from the natural secants, according to what was before demonstrated. It is also observed that the artificial tangents and secants are computed, as above, on the supposition that o is the logarithm of 1, and 1000000000000 the radius, and 2302585092994045624017870 the logarithm of 10; but that they may be more easily computed, namely by addition only, by putting $\frac{1}{80}$ of a degree = QG = AP = 1, and the logarithm of 10 = 791570 4467897819; for by this means $\frac{1}{2}QH \times QG$ is $= \frac{1}{2}QH = QHG$, and $\frac{1}{2}QH \times QG - \frac{1}{12}Z \times QG = \frac{1}{2}QH - \frac{1}{12}Z = QHG$,



also

also $\frac{1}{2}QH \times QG - \sqrt{\frac{1}{72}QH \times Z \times QG^2 - \frac{1}{1728}Z^2 \times QG^2} = \frac{1}{2}QH - \sqrt{\frac{1}{72}QH \times Z - \frac{1}{1728}Z^2} = QHG$: And finally by one division only are found the artificial tangents and secants to 1000000000000000 the logarithm of 10, putting still 1 for radius, which are the differences of the artificial tangents and secants in the table from that artificial radius; and to make the operations easier in multiplying by the number 7915704467897819, or logarithm of 10, a table is set down of its products by the first 9 figures. But if AP or QG be $= \frac{1}{105}$ of a degree, the artificial tangents and secants will answer to 13192840779829703 as the logarithm of 10, whose first 9 multiples are also placed in the table. But to represent the numbers by the artificial radius rather than by the logarithm of 10, the author directs to add ciphers, &c.—And so much for Gregory's *Exercitationes Geometricæ*.

The same analogy between the logarithmic tangents and the meridian line, as also other similar properties, were afterwards more elegantly demonstrated by Dr. Halley in the *Philos. Trans.* for Feb. 1696, and various methods given for computing the same, by examining the nature of the spirals into which the rhumbs are transformed in the stereographical projection of the sphere on the plane of the equator: the doctrine of which was rendered still more easy and elegant by the ingenious Mr. Cotes in his *Logometria*, first printed in the *Philos. Trans.* for 1714, and afterwards in the collection of his works published in 1732 by his cousin Dr. Robert Smith, who succeeded him in the Plumian professorship of philosophy in the University of Cambridge.

The learned Dr Isaac Barrow also, in his *Lectiones Geometricæ, Lect. XI. Append.* first published in 1672, delivers a similar property, namely, that the sum of all the secants of any arc, is analogous to the logarithm of the ratio of $r+s$ to $r-s$, or radius plus sine to radius minus sine; or, which is the same thing, that the meridional parts answering to any degree of latitude, are as the logarithms of the ratios of the versed sines of the distances from the two poles.

Mr. Gregory's method for making logarithms was farther exemplified in numbers, in a small tract on this subject, printed in 1688, by one Euclid Speidell, a simple and illiterate person, and son of John Speidell before mentioned among the first writers on logarithms.

Mr. Gregory also invented many other infinite series, and among them these here following, viz. a being an arc, t its tangent, and s the secant, to the radius r ; then is

$$\begin{aligned} a &= t - \frac{t^3}{3r^2} + \frac{t^5}{5r^4} - \frac{t^7}{7r^6} + \frac{t^9}{9r^8} \&c. \\ t &= a + \frac{a^3}{3r^2} + \frac{2a^5}{15r^4} + \frac{17a^7}{315r^6} + \frac{62a^9}{2835r^8} \&c. \\ s &= r + \frac{a^2}{2r} + \frac{5a^4}{24r^3} + \frac{61a^6}{720r^5} + \frac{277a^8}{8064r^7} \&c. \end{aligned}$$

O

And

And if τ and σ be the artificial or logarithmic tangent and secant of the same arc a , the whole quadrant being q , and $e = 2a - q$; then

$$e = \tau - \frac{\tau^3}{6r^2} + \frac{\tau^5}{24r^4} - \frac{61\tau^7}{5040r^6} + \frac{277\tau^9}{72576r^8} \&c.$$

$$\tau = e + \frac{e^3}{6r^2} + \frac{e^5}{24r^4} + \frac{61e^7}{5040r^6} + \frac{277e^9}{72576r^8} \&c.$$

$$\sigma = \frac{a^2}{2r} + \frac{a^4}{12r^3} + \frac{a^6}{45r^5} + \frac{17a^8}{2520r^7} + \frac{62a^{10}}{28350r^9} \&c.$$

Also if f be the artificial secant of 45° , and $f + l$ the artificial secant of any arc a , the artificial radius being o ; then is

$$a = \frac{1}{2}q + l - \frac{l^2}{r} + \frac{4l^3}{3r^2} - \frac{7l^4}{3r^3} + \frac{14l^5}{3r^4} - \frac{452l^6}{45r^5} \&c.$$

The investigation of all which series may be seen at pa. 298 *et seq.* vol. 1. Dr Horsley's learned and elegant commentary on Sir I. Newton's works, as they were given in the *Commercium Epistolicum* No xx without demonstration, and where the number 2 is also wanting in the denominator of the first term of the series expressing the value of σ .

Such then were the ways in which Mercator and Gregory applied these their very simple series $A - \frac{1}{2}A^2 + \frac{1}{3}A^3 - \frac{1}{4}A^4 \&c.$, and $A + \frac{1}{2}A^2 + \frac{1}{3}A^3 + \frac{1}{4}A^4 \&c.$, for the purpose of computing logarithms. But they might, as I apprehend, have applied them to this purpose in a shorter and more direct manner, by computing, by their means, only a few logarithms of small ratios, in which the terms of the series would have decreased by the powers of 10 or some greater number, the numerators of all the terms being unity, and their denominators the powers of 10 or some greater number, and then employing these few logarithms, so computed, to the finding of the logarithms of other and greater ratios by the easy operations of mere addition and subtraction. This might have been done for the logarithms of the ratios of the first ten numbers, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11, to 1, in the following manner, communicated by Mr Baron Maſeres.—In the first place the logarithm of the ratio of 10 to 9, or of 1 to $\frac{9}{10}$, or of 1 to $1 - \frac{1}{10}$, is equal to the series $\frac{1}{10} + \frac{1}{2 \times 100} + \frac{1}{3 \times 1000} + \frac{1}{4 \times 10000} + \frac{1}{5 \times 100000} \&c.$ In like manner are easily found the logarithms of the ratios of 11 to 10; and then by the same series those of 121 to 120, and of 81 to 80, and of 2401 to 2400; in all which cases the series would converge still faster than in the two first cases. We may then proceed by mere addition and subtraction of logarithms, as follows.

$$\begin{array}{l} \text{Log. } \frac{11}{9} = \text{L. } \frac{11}{10} + \text{L. } \frac{10}{9}, \quad \text{L. } \frac{120}{119} = \text{L. } \frac{3}{2}, \quad \text{L. } \frac{80}{79} = \text{L. } \frac{81}{80} - \text{L. } \frac{81}{80} \\ \text{L. } \frac{121}{120} = 2 \text{L. } \frac{11}{120}, \quad \text{L. } \frac{9}{8} = 2 \text{L. } \frac{3}{2}, \quad \text{L. } \frac{5}{4} = \text{L. } \frac{81}{80} - \text{L. } \frac{81}{80} \\ \text{L. } \frac{120}{119} = \text{L. } \frac{121}{120} + \text{L. } \frac{81}{80}, \quad \text{L. } \frac{10}{9} = \text{L. } \frac{10}{9} + \text{L. } \frac{9}{10}, \quad \text{L. } \frac{3}{2} = \text{L. } \frac{3}{2} \\ \text{L. } \frac{120}{119} = \text{L. } \frac{120}{119} - \text{L. } \frac{121}{120}, \quad \text{L. } \frac{80}{79} = 2 \text{L. } \frac{3}{2}, \quad \text{L. } \frac{2}{1} = \text{L. } \frac{1}{1} - \text{L. } \frac{1}{2}. \end{array}$$

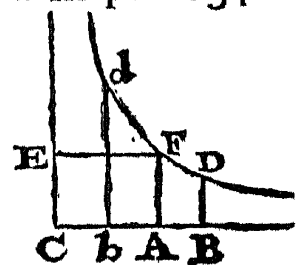
Having thus got the logarithm of the ratio of 2 to 1, or, in common language, the logarithm of 2, the logarithms of all sorts of even numbers may be derived from those of the odd numbers which are their coefficients with 2 or its powers. I would then proceed as follows.

$$\begin{array}{l} \text{L. } 4 = 2 \text{ L. } 2, \\ \text{L. } 10 = \text{L. } \frac{10}{4} + \text{L. } 4, \\ \text{L. } 9 = \text{L. } \frac{9}{4} + \text{L. } 4, \\ \text{L. } 3 = \frac{1}{2} \text{ L. } 9 \end{array} \quad \begin{array}{l} \text{L. } 100 = 2 \text{ L. } 10, \\ \text{L. } 8 = 3 \text{ L. } 2, \\ \text{L. } 24 = \text{L. } 8 + \text{L. } 3, \\ \text{L. } 2400 = \text{L. } 100 + \text{L. } 24, \end{array} \quad \begin{array}{l} \text{L. } 2401 = \text{L. } \frac{2401}{4} + \text{L. } 2400, \\ \text{L. } 7 = \frac{1}{4} \text{ L. } 2401, \\ \text{L. } 11 = \text{L. } \frac{11}{9} + \text{L. } 9, \\ \text{L. } 6 = \text{L. } 2 + \text{L. } 3. \end{array}$$

Thus we have got the logarithms of 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11. And this is upon the whole, perhaps the best method of computing logarithms that can be taken. There have been indeed some methods discovered by Dr. Halley, and other mathematicians, for computing the logarithms of the ratios of prime numbers to the next adjacent even numbers, that are still shorter than the application of the foregoing series. But those methods are less simple and easy to understand and apply than these series; and the computation of logarithms by these series, when the terms of them decrease by the powers of 10, or of some greater number, is so very short and easy (as we have seen in the foregoing computations of the logarithms of the ratios of 10 to 9, 11 to 10, 81 to 80, 121 to 120, &c,) that it is not worth while to seek for any shorter methods of computing them. And this method of computing logarithms is very nearly the same with that of Sir Isaac Newton in his second letter to Mr. Oldenburg, dated October 1676, as will be seen in the following article.

Of Sir Isaac Newton's Methods.

The excellent Sir I. Newton greatly improved the quadrature of the hyperbolical-asymptotic spaces by infinite series, derived from the general quadrature of curves by his method of fluxions; or rather indeed he invented that method himself, and the construction of logarithms derived from it, in the year 1665 or 1666, before the publication of either Mercator's or Gregory's books, as appears by his letter to Mr. Oldenburg dated Oct. 24, 1676, printed in pa. 634 *et seq.* vol. 3 of Wallis's works, and elsewhere. The quadrature of the hyperbola, thence translated is to this effect. Let dFD be an hyperbola, whose center is C, vertex F, and interposed square CAFF = 1. In CA take AB and Ab on each side = $\frac{1}{15}$ or 0.1: And, erecting the perpendiculars BD, bd; half the sum of the spaces AD and Ad will be



$$= 0.1 + \frac{0.001}{3} + \frac{0.0001}{5} + \frac{0.000001}{7} \&c.$$

and the half diff. = $\frac{0.01}{2} + \frac{0.0001}{4} + \frac{0.000001}{6} + \frac{0.00000001}{8} \&c.$ Which reduced will stand thus,

1.000000000000	0.005000000000
3333333333	2500000000
200000000	1666666
142857	12500
1111	100
9	1
0.1003353477310	0.0050251679267

The sum of these 0.1053605156577 is Ad. and the differ. 0.0953101798043 is AD. In like manner putting AB and Ab each = 0.2, there is obtained Ad = 0.2231435513142, and AD = 0.1823215567939.

Having

Having thus the hyperbolic logarithms of the four decimal numbers 0.8, 0.9, 1.1, and 1.2; and since $\frac{1.2}{0.8} \times \frac{1.2}{0.9} = 2$, and 0.8 and 0.9 are less than unity; add their logarithms to double the logarithm of 1.2, and you will have 0.6931471805597 the hyperbolic logarithm of 2.

To the triple of this add the logarithm of 0.8, because $\frac{2 \times 2 \times 2}{0.8} = 10$, and you have 2.3025850929933 the logarithm of 10. Hence by one addition are found the logarithms of 9 and 11: And thus the logarithms of all these prime numbers 2, 3, 5, 11 are prepared. Moreover, by only depressing the numbers, above computed, lower in the decimal places, and adding, are obtained the logarithms of the decimals 0.98, 0.99, 1.01, 1.02; as also of these 0.998, 0.999, 1.001, 1.002: And hence by addition and subtraction will arise the logarithms of the primes 7, 13, 17, 37, &c. All which logarithms being divided by the above logarithm of 10, give the common logarithms to be inserted in the table.

And again a few pages farther on in the same letter he resumes the construction of the logarithms, thus: Having found, as above, the hyperbolic logarithms of 10, 0.98, 0.99, 1.01, 1.02, which may be effected in an hour or two, divide the last four logarithms by the logarithm of 10, and adding the index 2, you will have the tabular logarithms of 98, 99, 100, 101, 102. Then by interpolating nine means between each of these, will be obtained the logarithms of all numbers between 980 and 1020; and again interpolating 9 means between every two numbers from 980 to 1000, the table will be so far constructed. Then from these will be collected the logarithms of all the primes under 100, together with those of their multiples: all which will require only addition and subtraction; for

$$\begin{aligned} \sqrt[10]{\frac{9984 \times 1020}{9945}} &= 2, \frac{10}{2} = 5, \sqrt{\frac{98}{2}} = 7, \frac{99}{9} = 11, \frac{1001}{7 \times 11} = 13, \frac{102}{6} = 17, \\ \frac{988}{4 \times 13} &= 19, \frac{9936}{16 \times 27} = 23, \frac{986}{2 \times 17} = 29, \frac{992}{32} = 31, \frac{999}{27} = 37, \frac{984}{24} = 41, \\ \frac{989}{23} &= 43, \frac{987}{27} = 47, \frac{9911}{11 \times 17} = 53, \frac{9971}{13 \times 13} = 59, \frac{9882}{2 \times 81} = 61, \frac{9849}{3 \times 49} = 67, \\ \frac{994}{14} &= 71, \frac{9928}{8 \times 17} = 73, \frac{9954}{7 \times 18} = 79, \frac{996}{12} = 83, \frac{9968}{7 \times 16} = 89, \frac{9894}{6 \times 17} = 97. \end{aligned}$$

This quadrature of the hyperbola, and its application to the construction of logarithms, are still farther explained by our celebrated author in his treatise on Fluxions, published by Mr Colson in 1736, where he gives all the three series for the areas AD, Ad, Bd, in general terms, the former the same as that published by Mercator, and the latter by Gregory; and he explains the manner of deriving the latter series from the former, namely by uniting together the two series for the spaces on each side of an ordinate, bounded by other ordinates at equal distances, every 2d term of each series is cancelled,

cancelled, and the result is a series converging much quicker than either of the former. And, in this treatise on fluxions, as well as in the letter before quoted, he recommends this as the most commodious method of constructing a canon of logarithms, computing by the series the hyperbolic spaces answering to the prime numbers 2, 3, 5, 7, 11, &c, and dividing them by 2.3025850929940457, which is the area corresponding to the number 10, or else multiplying them by its reciprocal 0.4342944819032518, for the common logarithms. "Then the logarithms of all the numbers in the canon which are made by the multiplication of these, are to be found by the addition of their logarithms, as is usual. And the void places are to be interpolated afterwards by the help of this theorem: Let n be a number to which a logarithm is to be adapted, x the difference between that and the two nearest numbers equally distant on each side, whose logarithms are already found, and let d be half the difference of the logarithms; then the required logarithm of the number n will be obtained by adding $d + \frac{dx}{2n} + \frac{dx^3}{12n^3}$ &c to the logarithm of the less number." This theorem he demonstrates by the hyperbolic areas, and then proceeds thus; "The two first terms $d + \frac{dx}{2n}$ of this series I think to be accurate enough for the construction of a canon of logarithms, even though they were to be produced to 14 or 15 figures; provided the number whose logarithm is to be found be not less than 1000. And this can give little trouble in the calculation, because x is generally an unit, or the number 2. Yet it is not necessary to interpolate all the places by the help of this rule. For the logarithms of numbers which are produced by the multiplication or division of the number last found, may be obtained by the numbers whose logarithms were had before, by the addition or subtraction of their logarithms. Moreover by the differences of the logarithms, and by their 2d and 3d differences, if there be occasion, the void places may be more expeditiously supplied; the foregoing rule being to be applied only when the continuation of some full places is wanted, in order to obtain those differences, &c." So that Sir I. Newton of himself discovered all the series for the above quadrature which were found out, and afterwards published, partly by Mercator and partly by Gregory; and these we may here exhibit in one view all together, and that in a general manner for any hyperbola, namely putting $CA = a$, $AF = b$, and $AB = Ab = x$; then will

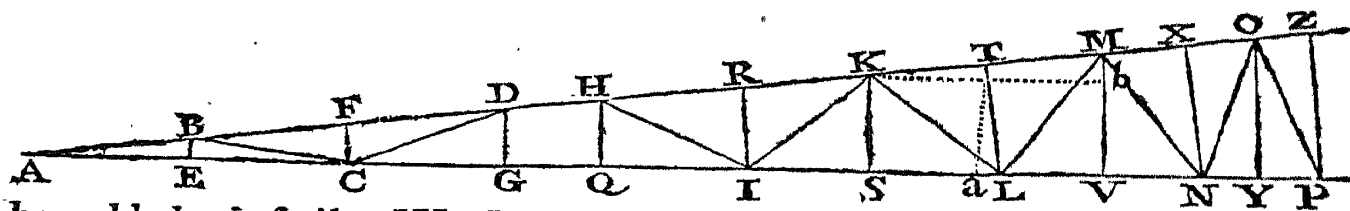
$BD = \frac{ab}{a+x}$, and $bd = \frac{ab}{a-x}$; whence the area

$$AD = bx - \frac{bx^2}{2a} + \frac{bx^3}{3a^2} - \frac{bx^4}{4a^3} + \frac{bx^5}{5a^4} \&c.$$

$$Ad = bx + \frac{bx^2}{2a} + \frac{bx^3}{3a^2} + \frac{bx^4}{4a^3} + \frac{bx^5}{5a^4} \&c.$$

$$Bd = 2bx + \frac{2bx^3}{3a^2} + \frac{2bx^5}{5a^4} + \frac{2bx^7}{7a^6} + \frac{2bx^9}{9a^8} \&c.$$

In the same letter also, above quoted, to Mr. Oldenburg, our illustrious author teaches a method of constructing the trigonometrical canon of sines by an easier method of multiple angles than that before delivered by Briggs for the same purpose, because that in Sir Isaac's way radius or 1 is the first term, and double the sine or cosine of the first given angle is the 2d term of all the proportions by which the several successive multiple sines or cosines are found. The substance of this method is thus: The best foundation for the construction of the table of sines, is the continual addition of a given angle to itself or to another given angle. As if the angle A be to



be added; inscribe $HI, IK, KL, LM, MN, NO, OP$, &c each equal to the radius AB ; and to the opposite sides draw the perpendiculars $BE, HQ, IR, KS, LT, MV, NX, OY$, &c; so shall the angle A be the common difference of the angles HIQ, IKH, KLI, LMK , &c; their sines HQ, IR, KS , &c; and their cosines IQ, KR, LS , &c. Now let any one of them LMK , be given, and the rest will be thus found: Draw Ta and Kb perpendicular to SV and MV ; then because of the equiangular triangles ABE, TLa, KMb, ALT, AMV , &c, it will be $AB : AE :: KT : Sa (= \frac{1}{2}LV + \frac{1}{2}LS) :: LT : Ta (= \frac{1}{2}MV + \frac{1}{2}KS)$ and $AB : BE :: LT : La (= \frac{1}{2}LS - \frac{1}{2}LV) :: KT (= \frac{1}{2}KM) : \frac{1}{2}Mb (= \frac{1}{2}MV - \frac{1}{2}KS)$. Hence are given the sines and cosines KS, MV, LS, LV . And the method of continuing the progressions is evident. Namely

$$AB : 2AE :: \begin{cases} LV : MT + MX :: MX : NV + NY, \&c. \\ MV : NX + LT :: NX : OY + MV \&c \end{cases}$$

$$\text{or } AB : 2BE :: \begin{cases} LV : NX - LT :: MX : OY - MV \&c \\ MV : MT - MX :: NX : NV - NY \&c \end{cases}$$

And on the other hand, $AB :: 2AE :: LS : KT + KR$ &c, Therefore put $AB = 1$, and make $BE \times LT = La, AE \times KT = Sa, Sa - La = LV, 2AE \times LV - TM = MX$, &c.

The sense of these general theorems is this, that if P be any one among a series of angles in arithmetical progression, the angle d being their common difference, then as radius or

$$1 : 2 \cos. d :: \begin{cases} \cos. P : \cos. P + d + \cos. P - d \\ \sin. P : \sin. P + d + \sin. P - d \end{cases} \text{ where the 4th}$$

$$1 : 2 \sin. d :: \begin{cases} \cos. P : \sin. P + d - \sin. P - d \\ \sin. P : \cos. P + d - \cos. P - d \end{cases} \text{ terms of these}$$

proportions are the sums or differences of the sines or cosines of the two angles next less and greater than any angle P in the series; and therefore subtracting the less extreme from the sum, or adding it to the difference, the result will be the greater extreme, or next sine or cosine beyond that of the term P . And in the same manner are all the rest to be found. This method it is evident, is equally applicable whether the common difference d

or

or angle A be equal to one term of the series or not: when it is one of the terms, then the whole series of sines and cosines becomes thus, as $1 : 2 \cos. d ::$

$$\sin. d : \sin. 2d :: \sin. 2d : \sin. d + \sin. 3d :: \sin. 3d : \sin. 2d + \sin. 4d :: \sin. 4d : \sin. 3d + \sin. 5d \&c, \\ \cos. d : 1 + \cos. 2d :: \cos. 2d : \cos. d + \cos. 3d :: \cos. 3d : \cos. 2d + \cos. 4d :: \cos. 4d : \cos. 3d + \cos. 5d \&c.$$

which is the very method contained in the directions given by Mr. Abr. Sharp for constructing the canon of sines.

Sir I. Newton remarks that it only remains to find the sine and cosine of a first angle A by some other method, and for this purpose he directs us to make use of some of his own infinite series: thus, by them will be found 1.57079 &c for the quadrantal arc, the square of which is 2.4694 &c; divide this square by the square of the number expressing the ratio of 90 degrees to the angle A, calling the quo-

tient z ; then 3 or 4 terms of this series $1 - \frac{z}{2} + \frac{z^2}{24} - \frac{z^3}{720} + \frac{z^4}{40320} \&c$

will give the cosine of that angle A. Thus we may first find an angle of 5 degrees, and thence the table computed to the series of every 5 degrees; then these interpolated to degrees or half degrees by the same method; and these interpolated again; and so on as far as necessary. But two-thirds of the table being computed in this manner, the remaining third will be found by addition or subtraction only, as is well known.

Various other improvements in logarithms and trigonometry are owing to the same excellent personage; such as the series for expressing the relation between circular arcs and their sines, cosines, versed-sines, tangents, &c; namely, the arc being a , the sine s , the versed-sine v , cosine c , tangent t , radius 1, then is

$$\begin{aligned} a &= s + \frac{1}{6}s^3 + \frac{3}{40}s^5 + \frac{5}{112}s^7 + \frac{35}{1152}s^9 + \frac{63}{2880}s^{11} \&c. \\ a &= v^{\frac{1}{2}} + \frac{1}{8}v^{\frac{3}{2}} + \frac{3}{40}v^{\frac{5}{2}} + \frac{5}{112}v^{\frac{7}{2}} + \frac{35}{1152}v^{\frac{9}{2}} + \frac{63}{2880}v^{\frac{11}{2}} \&c. \\ a &= t - \frac{1}{3}t^3 + \frac{1}{5}t^5 - \frac{1}{7}t^7 + \frac{1}{9}t^9 - \frac{1}{11}t^{11} \&c. \\ s &= a - \frac{1}{6}a^3 + \frac{1}{120}a^5 - \frac{1}{5040}a^7 + \frac{1}{362880}a^9 - \frac{1}{39916800}a^{11} \&c. \\ c &= 1 - \frac{1}{2}a^2 + \frac{1}{24}a^4 - \frac{1}{720}a^6 + \frac{1}{40320}a^8 - \frac{1}{3628800}a^{10} \&c. \\ v &= \frac{1}{2}a^2 - \frac{1}{24}a^4 + \frac{1}{720}a^6 - \frac{1}{40320}a^8 + \frac{1}{362880}a^{10} - \frac{1}{479001600}a^{12} \&c. \\ t &= a + \frac{1}{3}a^3 + \frac{1}{5}a^5 + \frac{1}{7}a^7 + \frac{1}{9}a^9 + \frac{1}{11}a^{11} \&c. \end{aligned}$$

Of Dr. Halley's Method.

Many other improvements in the construction of logarithms are also derived from the same doctrine of fluxions, as we shall shew hereafter. In the mean time proceed we to the ingenious method of the learned Dr. Edmund Halley, Secretary to the Royal Society, and the second Astronomer Royal, having succeeded Mr. Flamsteed in that honourable office in the year 1719 at the Royal Observatory at Greenwich, where he died the 14th of January 1742, in the 86th year of his age. His method was first printed in the Philosophical Transactions for the year 1695, and it is entituled "A most compendious and facile method for constructing the logarithms, exemplified and demonstrated from the nature of numbers, without any regard to the hyperbola,

hyperbola, with a speedy method for finding the number from the given logarithm."

Instead of the more ordinary definition of logarithms, *numerorum proportionalium æquidifferentes comites*, in this tract our learned author adopts this other, *numeri rationum exponentes*, as being better adapted to the principle on which logarithms are here constructed, where those quantities are not considered as the logarithms of the numbers, for example, of 2, or of 3, or of 10, but as the logarithms of the ratios of 1 to 2, or 1 to 3, or 1 to 10. In this consideration he first pursues the idea of Kepler and Mercator, remarking that any such ratio is proportional to, and is measured by, the number of equal ratiunculæ contained in each; which ratiunculæ are to be understood as in a continued scale of proportionals, infinite in number, between the two terms of the ratio; which infinite number of mean proportionals is to that infinite number of the like and equal ratiunculæ between any other two terms, as the logarithm of the one ratio is to the logarithm of the other: thus, if there be supposed between 1 and 10 an infinite scale of mean proportionals, whose number is 100000 &c *in infinitum*; then between 1 and 2 there will be 30102 &c of such proportionals; and between 1 and 3 there will be 47712 &c of them; which numbers therefore are the logarithms of the ratios of 1 to 10, 1 to 2, and 1 to 3. But for the sake of *his* mode of constructing logarithms, he changes this idea of *equal* ratiunculæ for that of other ratiunculæ, so constituted as that the *same* infinite number of them shall be contained in the ratio of 1 to every other number whatever; and that therefore these latter ratiunculæ will be of *unequal* or different magnitudes in all the different ratios, and in such sort that, in any one ratio, the *magnitude* of each of the ratiunculæ in this latter case, will be as the *number* of them in the former. And therefore if between 1 and any number proposed, there be taken any infinity of mean proportionals, the infinitely small augment or decrement of the first of those means from the first term 1, will be a ratiuncula of the ratio of 1 to the said number; and as the number of all the ratiunculæ in these continued proportionals is the same, their sum or the whole ratio will be directly proportional to the magnitude of one of the said ratiunculæ in each ratio. But it is also evident that the first of any number of means between 1 and any number, is always equal to such root of that number whose index is expressed by the number of those proportionals from 1; so if m denote the number of proportionals from 1, then the first term after 1 will be the m th root of that number. Hence the indefinite root of any number being extracted, the *differentiola* of the said root from unity, shall be as the logarithm of that number. So if there be required the logarithm of the ratio of 1 to $1 + q$; the first term after 1 will be $\sqrt[m]{1 + q}$, and therefore the required logarithm will be as $\sqrt[m]{1 + q} - 1$. But, by the binomial theorem, $\sqrt[m]{1 + q}$ is $= 1 + \frac{1}{m} q + \frac{1}{m} \cdot \frac{1-m}{2m} q^2 + \frac{1}{m} \cdot \frac{1-m}{2m} \cdot \frac{1-2m}{3m} q^3$ &c; or by omitting the 1 in the compound numerators, as infinitely

nitely small in respect of the infinite number m , the same series will become $1 + \frac{1}{m}q + \frac{1}{m} \cdot \frac{-m}{2m} q^2 + \frac{1}{m} \cdot \frac{-m}{2m} \cdot \frac{-2m}{3m} q^3 \&c$, or by abbreviation

it is $1 + \frac{1}{m}q - \frac{1}{2m}q^2 + \frac{1}{3m}q^3 - \frac{1}{4m}q^4 \&c$; and hence finding the differentiola by subtracting 1, the logarithm of the ratio of 1 to $1 + q$ will be as $\frac{1}{m}$ into $q - \frac{1}{2}q^2 + \frac{1}{3}q^3 - \frac{1}{4}q^4 + \frac{1}{5}q^5 - \frac{1}{6}q^6 \&c$. Now the index m may be taken equal to any infinite number, and thus all the varieties of scales of logarithms may be produced: so, if m be taken 1000000 &c, the theorem will give Napier's logarithms; but if m be taken equal to 230258 &c, there will arise Briggs's logarithms.

This theorem being for the increasing ratio of 1 to $1 + q$; if that for the decreasing ratio of 1 to $1 - q$ be also sought, it will be obtained by a proper change of the signs, by which the decrement of the first of the infinite number of proportionals will be found to be $\frac{1}{m}$ into $q + \frac{1}{2}q^2 + \frac{1}{3}q^3 + \frac{1}{4}q^4 \&c$, which therefore is as the logarithm of the ratio of 1 to $1 - q$.

Hence the terms of any ratio being a and b , q becomes $\frac{b-a}{a}$, or the difference divided by the less term, when it is an increasing ratio; or $q = \frac{b-a}{b}$ when the ratio is decreasing, or as b to a . Wherefore the logarithm of the same ratio may be doubly expressed; for putting x for the difference $b - a$ of the terms, it will be

$$\text{either } \frac{1}{m} \text{ into } \frac{x}{a} - \frac{x^2}{2a^2} + \frac{x^3}{3a^3} - \frac{x^4}{4a^4} \&c,$$

$$\text{or } \frac{1}{m} \text{ into } \frac{x}{b} + \frac{x^2}{2b^2} + \frac{x^3}{3b^3} + \frac{x^4}{4b^4} \&c.$$

But if the ratio of a to b be supposed divided into two parts, namely, into the ratio of a to $\frac{1}{2}a + \frac{1}{2}b$ or $\frac{1}{2}z$, and the ratio of $\frac{1}{2}z$ to b , then will the sum of the logarithms of those two ratios be the logarithm of the ratio of a to b . Now by substituting in the foregoing series, the logarithms of those two ratios will

$$\text{be } \frac{1}{m} \text{ into } \frac{x}{z} + \frac{x^2}{2z^2} + \frac{x^3}{3z^3} + \frac{x^4}{4z^4} + \frac{x^5}{5z^5} \&c,$$

$$\text{and } \frac{1}{m} \text{ into } \frac{x}{z} - \frac{x^2}{2z^2} + \frac{x^3}{3z^3} - \frac{x^4}{4z^4} + \frac{x^5}{5z^5} \&c; \text{ and so the sum}$$

$$\frac{1}{m} \text{ into } \frac{2x}{z} + \frac{2x^3}{3z^3} + \frac{2x^5}{5z^5} + \frac{2x^7}{7z^7} \&c \text{ will be the log. of the ratio of } a \text{ to } b.$$

Moreover, if from the logarithm of the ratio of a to $\frac{1}{2}z$ be taken that of $\frac{1}{2}z$ to b , we shall have the logarithm of the ratio of ab to $\frac{1}{4}z^2$; and the half of this gives that of \sqrt{ab} to $\frac{1}{2}z$, or of the geometrical mean to the arithmetical mean. And consequently the logarithm of this ratio will be equal to half the difference of that of the above two ratios, and will therefore be $\frac{1}{m}$ into $\frac{x^2}{2z^2} + \frac{x^4}{4z^4} + \frac{x^6}{6z^6} + \frac{x^8}{8z^8} \&c$.

The above series are similar to some that were before given by Newton and Gregory for the same purpose, deduced from the consideration of the hyperbola. But the rule which is properly our au-

P

thor's

thor's own, is that which follows, and is derived from the series above given for the logarithm of the sum of two ratios. For the ratio of ab to $\frac{1}{4}z^2$ or $\frac{1}{4}a^2 + \frac{1}{2}ab + \frac{1}{4}b^2$, having the difference of its terms $\frac{1}{4}a^2 - \frac{1}{2}ab + \frac{1}{4}b^2$ or $\frac{1}{2}b - \frac{1}{2}a$ or $\frac{1}{4}x^2$, which in the case of finding the logarithms of prime numbers is always 1, if we call the sum of the terms $\frac{1}{4}z^2 + ab = y^2$, the logarithm of the ratio of \sqrt{ab} to $\frac{1}{2}a + \frac{1}{2}b$ or $\frac{1}{2}z$ will be found to be

$$\frac{1}{m} \text{ into } \frac{1}{y^2} + \frac{1}{3y^6} + \frac{1}{5y^{10}} + \frac{1}{7y^{14}} + \frac{1}{9y^{18}} \&c.$$

And these rules our learned author exemplifies by some cases in numbers, to shew the easiest mode of application in practice.

Again by means of the same binomial theorem he resolves with equal facility the reverse of the problem, namely, from the logarithm given, to find its number or ratio: For as the logarithm of the ratio of 1 to $1 + q$ was proved to be $\sqrt[m]{1+q} - 1$, and that of the ratio of 1 to $1 - q$ to be $1 - \sqrt[m]{1-q}$; hence, calling the given logarithm L , in the former case

$$\text{it will be } \sqrt[m]{1+q} = 1 + L,$$

$$\text{and in the latter } \sqrt[m]{1-q} = 1 - L;$$

and therefore $1 + q = \sqrt[m]{1+L^m}$ and $1 - q = \sqrt[m]{1-L^m}$ } , that is by the binomial theorem

$$1 + q = 1 + mL + \frac{1}{2}m^2L^2 + \frac{1}{6}m^3L^3 + \frac{1}{24}m^4L^4 + \frac{1}{120}m^5L^5 \&c,$$

and $1 - q = 1 - mL + \frac{1}{2}m^2L^2 - \frac{1}{6}m^3L^3 + \frac{1}{24}m^4L^4 - \frac{1}{120}m^5L^5 \&c.$
 m being any infinite index whatever, differing according to the scale of logarithms, being 1000 &c in Napier's or the hyperbolic logarithms, and 2302585 &c in Briggs's.

If one term of the ratio, of which L is the logarithm, be given, the other term will be easily obtained by the same rule: For if L be Napier's logarithm of the ratio of a the less term to b the greater, then according as a or b is given we shall have

$$b = a \text{ into } 1 + L + \frac{1}{2}L^2 + \frac{1}{6}L^3 + \frac{1}{24}L^4 \&c,$$

$$a = b \text{ into } 1 - L + \frac{1}{2}L^2 - \frac{1}{6}L^3 + \frac{1}{24}L^4 \&c.$$

Whence, by the help of the logarithms contained in the tables, may easily be found the number to any given logarithm to a great extent: For if the small difference between the given logarithm L and the nearest tabular logarithm, either greater or less, be called l , and the number answering to the tabular logarithm a when it is less than the given logarithm, but b when greater; it will follow that the number answering to the logarithm L will be either

$$a \text{ into } 1 + l + \frac{1}{2}l^2 + \frac{1}{6}l^3 + \frac{1}{24}l^4 + \frac{1}{120}l^5 \&c,$$

$$\text{or } b \text{ into } 1 - l + \frac{1}{2}l^2 - \frac{1}{6}l^3 + \frac{1}{24}l^4 - \frac{1}{120}l^5 \&c.$$

which series converge so quick, l being always very small, that the first two terms $1 \pm l$ are generally sufficient to find the number to 10 places of figures.

Dr. Halley subjoins also an easy approximation for these series, by which it appears that the number answering to the log. is nearly

$\frac{1+\frac{1}{2}l}{1-\frac{1}{2}l} \times a$ or $\frac{1-\frac{1}{2}l}{1+\frac{1}{2}l} \times b$ { in Napier's } $\frac{n+\frac{1}{2}l}{n-\frac{1}{2}l} \times a$ or $\frac{n-\frac{1}{2}l}{n+\frac{1}{2}l} \times b$ { in Briggs's }
 logs, and logarithms;
 where n is $= 434294481903$ &c $= \frac{1}{m}$.

Of Mr. Sharp's Methods.

The labours of Mr. Abraham Sharp, of Little-Horton near Bradford in Yorkshire, in this branch of mathematics, were very great and meritorious. His merit however consisted rather in the improvement and illustration of the methods of former writers, than in the invention of any new ones of his own. In this way he greatly extended and improved Dr. Halley's method above described, as also those of Mercator and Wallis; illustrating these improvements by extensive calculations, and by them computing our table 5, consisting of the logarithms of all numbers to 100, and of all prime numbers to 1100, each to 61 places. He also composed a neat compendium of the best methods for computing the natural sines, tangents, and secants, chiefly from the rules before given by Newton: and by Newton's or Gregory's series $a = t - \frac{1}{3}t^3 + \frac{1}{5}t^5 - \frac{1}{7}t^7$ &c, for the arc in terms of the tangent, he computed the circumference of the circle to 72 places, namely from the arc of 30 degrees, whose tangent t is $= \sqrt{\frac{1}{3}}$ to the radius 1. Other astonishing instances of his industry and labour appear in his *Geometry Improv'd*, printed in 1717, and signed *A. S. Philomath*, from whence the said table of logarithms was extracted. This ingenious man was sometime assistant at the Royal Observatory to Mr. Flamsteed the first Astronomer Royal; and, being one of the most accurate and indefatigable computers that ever existed, he was for many years the common resource for Mr. Flamsteed, Sir Jonas Moore, Dr. Halley, &c, in all intricate and troublesome calculations. He afterwards retired to his native place at Little-Horton, where, after a life spent in intense study and calculations, he died the 18th of July 1742, in the 91st year of his age.

Of the Construction of Logarithms by Fluxions.

It appears by the very definition and description given by Napier of his logarithms, as stated in page 42 of this introduction, that the fluxion of his, or the hyperbolic logarithm, of any number, is a fourth proportional to that number, its logarithm, and unity; or, which is the same, that it is equal to the fluxion of the number divided by the number: For the description shews that $z1 : za$ or $1 : z1$ the fluxion of $z1 : za$, which therefore is $= \frac{z1}{z1}$; but za is also equal to the fluxion of the logarithm A &c by the description; therefore the fluxion of the logarithm is equal to $\frac{z1}{z1}$, the fluxion of the quantity divided by the quantity itself. The same thing appears again at art. 2 of that little piece in the appendix to his *Constructio Logarithmorum*, entituled *Habitudines Logarithmorum & suorum naturalium nu-*

merorum invicem, where he observes that, as any greater quantity is to a less, so is the velocity of the increment or decrement of the logarithms at the place of the less quantity, to that at the greater. Now this velocity of the increment or decrement of the logarithms being the same thing as their fluxions, that proportion is this $x : a :: \text{flux. log. } a : \text{flux. log. } x$; hence if a be $= 1$, as at the beginning of the table of numbers, where the fluxion of the logs. is the index or characteristic c , which is also 1 in Napier's or the hyperbolic logarithms, and 43429 &c in Briggs's, the same proportion becomes $x : 1 :: c : \text{flux. log. } x$; but the constant fluxion of the numbers is also 1, and therefore that proportion is also this $x : \dot{x} :: c : \frac{c \dot{x}}{x} =$ the fluxion of the logarithm of x ; and in the hyperbolic logarithms, where c is $= 1$, it becomes $\frac{\dot{x}}{x} =$ the fluxion of Napier's or the hyperbolic logarithm of x . This same property has also been noticed by many other authors since Napier's time. And the same or a similar property is evidently true in all the systems of logarithms whatever, namely that the modulus of the system is to any number, as the fluxion of its logarithm is to the fluxion of the number.

Now from this property, by means of the doctrine of fluxions, are derived other ways for making logarithms, which have been illustrated by many writers on this branch, as Craig, Jo. Bernoulli, and almost all the writers on fluxions. And this method chiefly consists in expanding the reciprocal of the given quantity in an infinite series, then multiplying each term by the fluxion of the said quantity, and lastly taking the fluents of the terms; by which there arises an infinite series of terms for the logarithm sought. So, to find the logarithm of any number N ; put any compound quantity for N , as suppose $\frac{n+x}{n}$;

then the flux. of the log. or $\frac{\dot{N}}{N}$ being $\frac{\dot{x}}{n+x} = \frac{\dot{x}}{n} - \frac{x\dot{x}}{n^2} + \frac{x^2\dot{x}}{n^3} - \frac{x^3\dot{x}}{n^4} \&c$,

the fluents give log. of N or log. of $\frac{n+x}{n} = \frac{x}{n} - \frac{x^2}{2n^2} + \frac{x^3}{3n^3} - \frac{x^4}{4n^4} \&c$.

And writing $-x$ for x gives log. $\frac{n-x}{n} = -\frac{x}{n} - \frac{x^2}{2n^2} - \frac{x^3}{3n^3} - \frac{x^4}{4n^4} \&c$.

Also because $\frac{n}{n \pm x} = 1 \div \frac{n \pm x}{n}$, or log. $\frac{n}{n \pm x} = 0 - \log. \frac{n \pm x}{n}$,

we have log. $\frac{n}{n+x} = -\frac{x}{n} + \frac{x^2}{2n^2} - \frac{x^3}{3n^3} + \frac{x^4}{4n^4} \&c$,

and log. $\frac{n}{n-x} = +\frac{x}{n} + \frac{x^2}{2n^2} + \frac{x^3}{3n^3} + \frac{x^4}{4n^4} \&c$.

And by adding and subtracting any of these series to or from one another, and multiplying or dividing their corresponding numbers, various other series for logarithms may be found, converging much quicker than these do.

In

In like manner by assuming quantities otherwise compounded for the value of N , various other forms of logarithmic series may be found by the same means.

Of Mr. Cotes's Logometria.

Mr. Roger Cotes was elected the first Plumian professor of astronomy and experimental philosophy in the university of Cambridge, January 1706, which appointment he filled with the greatest credit, till he died the 5th of June 1716, in the prime of life, having not quite compleated the 34th year of his age. His early death was a great loss to the mathematical world, as his genius and abilities were of the brightest order, as is manifest by the specimens of his performance given to the public. Among these are his *Logometria*, first printed in number 338 of the Philosophical Transactions, and afterwards in his *Harmonia Mensurarum* published in 1722 with his other works, by his cousin and successor, in the Plumian professorship, Dr. Robert Smith. In this piece he first treats in a general way of measures of ratios, which measures he observes are quantities of any kind whose magnitudes are analogous to the magnitudes of the ratios; these magnitudes mutually increasing and decreasing together in the same proportion. He remarks that the ratio of equality has no magnitude, because it produces no change by adding and subtracting; that the ratios of greater and less inequality, are of different affections; and therefore if the measure of the one of these be considered as positive, that of the other will be negative; and the measure of the ratio of equality nothing: That there are endless systems of these which have all their measures of the same ratios proportional to certain given quantities, called *moduli*; which he defines afterwards, and the ratio of which they are the measures, each in its peculiar system, is called the modular ratio, *ratio modularis*, which ratio is the same in all systems. He then adverts to logarithms, which he considers as the *numerical* measures of ratios; and he describes the method of arranging them in tables, with the use of them in multiplication and division, raising of powers and extracting of roots, by means of the corresponding operations of addition and subtraction, multiplication and division.

After this introduction, which is only a slight abridgment of the doctrine long before very amply treated of by others, and particularly by Kepler and Mercator, we arrive at the first proposition, which has justly been censured as obscure and imperfect, seemingly through an affectation of brevity, intricacy, and originality without sufficient room for a display of this qualification. The reasoning in this proposition, such as it is, seems to be something between that of Kepler and the principles of fluxions, to which the quantities and expressions are nearly allied. However as it is my duty rather to narrate than explain, I shall here exhibit it exactly as it stands. This proposition is to determine the measure of any ratio, as for instance that of AC to AB , and which is effected in this manner: Conceive the

the difference BC to be divided $\overline{A \quad B \quad P \quad Q \quad C}$ into innumerable very small particles as PQ, and the ratio between AC and AB into as many such very small ratios, as between AQ and AP: then if the magnitude of the ratio between AQ and AP be given, by dividing there will also be given, that of PQ to AP; and therefore, this being given, the magnitude of the ratio between AQ and AP may be expounded by the given quantity $\frac{PQ}{AP}$; for, AP remaining constant, conceive the particle PQ to be augmented or diminished in any proportion, and in the same proportion will the magnitude of the ratio between AQ and AP be augmented or diminished: Also, taking any determinate quantity M, the same may be expounded by $M \times \frac{PQ}{AP}$; and therefore the quantity $M \times \frac{PQ}{AP}$ will be the measure of the ratio between AQ and AP. And this measure will have divers magnitudes, and be accommodated to divers systems, according to the divers magnitudes of the assumed quantity M, which therefore is called the *modulus* of the system. Now like as the sum of all the ratios AQ to AP is equal to the proposed ratio AC to AB, so the sum of all the measures $M \times \frac{PQ}{AP}$ (found by the known methods) will be equal to the required measure of the said proposed ratio.

The general solution being thus dispatched, from the general expression he next deduces other forms of the measure in several corollaries and scholia: as 1st, The terms AP, AQ, approach the nearer to equality as the small difference PQ is less; so that either $M \times \frac{PQ}{AP}$ or $M \times \frac{PQ}{AQ}$ will be the measure of the ratio between AQ and AP to the modulus M. 2d, That hence the modulus M is to the measure of the ratio between AQ and AP, as either AP or AQ is to their difference PQ. 3d, The ratio between AC and AB being given, the sum of all the $\frac{PQ}{AP}$ will be given; and the sum of all the $M \times \frac{PQ}{AP}$ is as M: therefore the measure of any given ratio is as the modulus of the system from which it is taken. 4th, Therefore, in every system of measures, the modulus will always be equal to the measure of a certain determinate and immutable ratio; which therefore he calls the modular ratio. 5th, To illustrate the solution by an example: let z be any determinate and permanent quantity, x a variable or indeterminate quantity, and \dot{x} its fluxion; then to find the measure of the ratio between $z + x$ and $z - x$, put this ratio equal to the ratio between y and 1, expounding the number y by AP, its fluxion \dot{y} by PQ, and 1 by AB: then the fluxion of the required measure of the ratio between y and 1 is $M \times \frac{\dot{y}}{y}$. Now for y restore its

val. $\frac{z+x}{z-x}$, and for \dot{y} the flux. of that val. $\frac{2z\dot{x}}{z-x^2}$, so shall the flux. of

the

the measure become $2M \times \frac{zx}{zx - xx}$ or $2M$ into $\frac{x}{z} + \frac{xx^2}{z^3} + \frac{xx^4}{z^5} \&c.$

And therefore that measure will be $2M$ into $\frac{x}{z} + \frac{x^3}{3z^3} + \frac{x^5}{5z^5} \&c.$

In like manner the measure of the ratio between $1 + v$ and 1 will be found to be M into $v - \frac{1}{2}v^2 + \frac{1}{3}v^3 - \frac{1}{4}v^4 \&c.$ And hence, to find the number from the logarithm given, he reverts the series in this manner: if the last measure be called m , we

shall have $\frac{m}{M}$ or $Q = v - \frac{1}{2}v^2 + \frac{1}{3}v^3 - \frac{1}{4}v^4 + \frac{1}{5}v^5 \&c,$

and therefore $Q^2 = \dots v^2 - v^3 + \frac{1}{12}v^4 - \frac{1}{6}v^5 \&c,$

and $Q^3 = \dots v^3 - \frac{3}{2}v^4 + \frac{7}{4}v^5 \&c,$

and $Q^4 = \dots v^4 - 2v^5 \&c,$

and $Q^5 = \dots v^5 \&c;$

then by adding continually we shall have

$Q + \frac{1}{2}Q^2 = v - \frac{1}{6}v^3 + \frac{5}{24}v^4 - \frac{13}{60}v^5 \&c,$

$Q + \frac{1}{2}Q^2 + \frac{1}{6}Q^3 = v - \frac{1}{24}v^4 + \frac{3}{40}v^5 \&c,$

$Q + \frac{1}{2}Q^2 + \frac{1}{6}Q^3 + \frac{1}{24}Q^4 = v - \frac{1}{120}v^5 \&c,$

$Q + \frac{1}{2}Q^2 + \frac{1}{6}Q^3 + \frac{1}{24}Q^4 + \frac{1}{120}Q^5 = v \&c,$

that is $v = Q + \frac{1}{2}Q^2 + \frac{1}{6}Q^3 + \frac{1}{24}Q^4 + \frac{1}{120}Q^5 \&c.$ And therefore the required ratio of $1 + v$ to 1 is equal to the ratio of $1 + Q + \frac{1}{2}Q^2 \&c$ to 1 . Put now $m = M$, or $Q = 1$, and the above will become the ratio of $1 + \frac{1}{1} + \frac{1}{2} + \frac{1}{6} + \frac{1}{24} + \frac{1}{120} \&c$ to 1 for the constant modular ratio. In like manner, if the ratio between 1 and $1 - v$ be proposed, the measure of this ratio will come out M into $v + \frac{1}{2}v^2 + \frac{1}{3}v^3 + \frac{1}{4}v^4 \&c$; which being called m , and $\frac{m}{M} = Q$, that ratio will be the ratio of 1 to $1 - Q + \frac{1}{2}Q^2 - \frac{1}{6}Q^3 + \frac{1}{24}Q^4 \&c.$ And hence, taking $m = M$, or $Q = 1$, the said modular ratio will also be the ratio of 1 to $1 - \frac{1}{1} + \frac{1}{2} - \frac{1}{6} + \frac{1}{24} - \frac{1}{120} \&c.$ And the former of these expressions for the modular ratio comes out the ratio of $2,718281828459 \&c$ to 1 , and the latter the ratio of 1 to $0,367879441171 \&c.$

In the 2d prop. our learned author gives directions for constructing Briggs's canon of logarithms, namely, first by the general series $2M$ into $\frac{x}{z} + \frac{x^3}{3z^3} + \frac{x^5}{5z^5} \&c$ finding the logarithms of a few such ratios as that of 126 to 125 , 225 to 224 , 2401 to 2400 , 4375 to 4374 , $\&c$, from whence the logarithm of 10 will be found to be $2,302585092994 \&c$, when M is 1 ; but since Briggs's log. of 10 is 1 , therefore as $2,302585 \&c$ is to the modulus 1 , so is 1 (Briggs's log. of 10) to $0,434294481903 \&c$, which therefore is the modulus of Briggs's logarithms. Hence he deduces the logarithms of $7, 5, 3$, and 2 . In like manner are the logarithms of other prime numbers to be found, and from them the logarithms of composite numbers by addition and subtraction only.

He then remarks that the first term of the general series $2M$ into $\frac{x}{z} + \frac{x^3}{3z^3} + \frac{x^5}{5z^5} \&c$ will be sufficient for the logarithms of intermediate numbers between those in the table, or even for numbers beyond the limits of the table. Thus, to find the logarithm answering to any intermediate number; let a and e be two numbers, the one the given number, and the other the nearest tabular number, a being the greater and e the less of them; put $z = a + e$ their sum, $x = a - e$ their difference, $\lambda =$ the logarithm of the ratio of a to e , that is the excess of the logarithm of a above that of e : so shall the said difference of their logarithms be $\lambda = 2M \times \frac{x}{z}$ very nearly.—

And if there be required the number answering to any given intermediate logarithm, because λ is =

$$\frac{2Mx}{z} = \frac{2Mx}{2a-x} \text{ or } \frac{2Mx}{2e+x}, \text{ therof. } x = \frac{\lambda a}{M + \frac{1}{2}\lambda} \text{ or } \frac{\lambda e}{M - \frac{1}{2}\lambda} \text{ very nearly.}$$

In the 3d prop. our ingenious author teaches how to convert the canon of logarithms to logarithms of any other system, by means of their *moduli*. And in several more propositions he exemplifies the canon of logarithms in the solution of various important problems in geometry and physics; such as the quadrature of the hyperbola, the description of the logistica, the equi-angular spiral, the nautical meridian, &c; the descent of bodies in resisting mediums, the density of the atmosphere at any altitude, &c, &c.

Of Doctor Taylor's Construction of Logarithms.

Dr. Brook Taylor, (a very learned mathematician, secretary to the Royal Society, and who died at Somerset-house, Nov. 1731) gave the following method of constructing logarithms in number 352 of the Philosophical Transactions. His method is founded on these three considerations: 1st, that the sum of the logarithms of any two numbers is the logarithm of the product of those numbers; 2d, that the logarithm of 1 is nothing, and consequently that the nearer any number is to 1, the nearer will its logarithm be to 0; 3d, that the product of two numbers or factors, of which the one is greater and the other less than 1, is nearer to 1 than that factor is which is on the same side of 1 with itself; so of the two numbers $\frac{2}{3}$ and $\frac{3}{4}$, the product $\frac{3}{8}$ is less than 1, but yet nearer to it than $\frac{2}{3}$ is, which is also less than 1. On these principles he founds the present approximation, which he explains by the following example. To find the relation between the logarithms of 2 and 10: In order to this he assumes two fractions as $\frac{128}{100}$ and $\frac{8}{10}$, or $\frac{2^7}{10^2}$ and $\frac{2^3}{10}$, whose numerators are powers of 2, and their denominators powers of 10, the one fraction being greater and the other less than unity or 1. Having set these two down, in the form of decimal fractions, below each other

other in the first column of the following table, and in the second column A and B for their logarithms, expressing by an equation how they are composed of the logarithms of 2 and 10, the numbers in question, those logarithms being denoted thus, l_2 and l_{10} . Then

1,280000000000	A = . . . =	$7l_2 -$	$2l_{10}$	$l_2 > 0,28$
0,800000000000	B = . . . =	$3l_2 -$	l_{10}	$< 0,33$
1,024000000000	C = A + B =	$10l_2 -$	$3l_{10}$	$> 0,300$
0,990352031429	D = B + 9 C =	$93l_2 -$	$28l_{10}$	$< 0,30107$
1,004336277664	E = C + 2 D =	$169l_2 -$	$59l_{10}$	$> 0,301020$
0,998959536107	F = D + 2 E =	$485l_2 -$	$146l_{10}$	$< 0,3010309$
1,000162894165	G = E + 4 F =	$2136l_2 -$	$643l_{10}$	$> 0,30102996$
0,999936281874	H = F + 6 G =	$13301l_2 -$	$4004l_{10}$	$< 0,301029997$
1,000035441215	I = G + 2 H =	$28738l_2 -$	$8651l_{10}$	$> 0,3010299951$
0,999971720830	K = H + I =	$42039l_2 -$	$12655l_{10}$	$< 0,3010299959$
1,000007161046	L = I + K =	$70777l_2 -$	$21306l_{10}$	$> 0,30102999562$
0,999993203514	M = K + 3 L =	$254370l_2 -$	$76573l_{10}$	$< 0,30102999567$
1,000000364511	N = L + M =	$325147l_2 -$	$97879l_{10}$	$> 0,3010299956635$
0,999999764687	O = M + 18 N =	$6107016l_2 -$	$1838335l_{10}$	$< 0,3010299956640$
comp.ar. 235313				
0=3645110 + 235313 N =	$2302585825187l_2 -$	$693147400972l_{10}$		$> 0,301029995663987$

multiplying the two numbers in the first column together, there is produced a third number 1,024, against which is written C, for its logarithm, expressing likewise by an equation in what manner C is formed of the foregoing logarithms A and B. And in the same manner the calculation is continued throughout; only observing this compendium, that before multiplying the two last numbers already entered in the table, to consider what power of one of them must be used to bring the product the nearest that can be to unity. Now, after having continued the table a little way, this is found by only dividing the differences of the numbers from unity one by the other, and taking the nearest quotient for the index of the power sought. Thus, the second and third numbers in the table being 0,8 and 1,024, their differences from unity are 0,200 and 0,024; hence $0,200 \div 0,024$ gives 9 for the index; and therefore multiplying the 9th power of 1,024 by 0,8 produces the next number 0,990352031429, whose logarithm is $D = B + 9 C$.

When the calculation is continued in this manner till the numbers become small enough, or near enough to 1, the last logarithm is supposed equal to nothing, which gives an equation expressing the relation of the logarithms, and from whence the required logarithm is determined. Thus, supposing $G = 0$, we have $2136l_2 - 643l_{10} = 0$, and hence, because the logarithm of 10 is 1, we obtain $l_2 = \frac{643}{2136} = 0,30102996$, too small in the last figure; which so happens because the number corresponding to G is greater than 1. And in this manner are all the numbers in the third or last column obtained, which are continual approximations to the logarithms of 2.

There is another expedient which renders this calculation still shorter, and it is founded on this consideration; that when x is small, $1 + x^n$ is nearly $= 1 + nx$. Hence if $1 + x$ and $1 - z$ be the two last numbers already found in the first column of the table, the product of their powers $1 + x^m \times 1 - z^n$ will be nearly $= 1$; and hence the relation of m and n may be thus found, $1 + x^m \times 1 - z^n$ is nearly $= 1 + mx \times 1 - nz = 1 + mx - nz - mnxz = 1 + mx - nz$ nearly, which being also $= 1$ nearly, therefore $m : n :: z : x :: 1 - z : 1 + x$; whence $x \cdot 1 - z + z \cdot 1 + x = 0$. For example, let 1,024 and 0,990352 be the last numbers in the table, their logarithms being C and D: here we have $1,024 = 1 + x$, and $0,990352 = 1 - z$; consequently $x = 0,024$, and $z = 0,009648$; and hence the ratio $\frac{z}{x}$ in small numbers is $\frac{201}{500}$. So that for finding the logarithms proposed, we may take $500 D + 201 C = 4851012 - 1460310 = 0$; which gives $12 = 0,3010307$. And in this manner are found the numbers in the last line of the table.

Of Mr. Long's Method.

In number 339 of the Philosophical Transactions, are given a brief table and method for finding the logarithm to any number, and the number to any logarithm, by Mr. John Long, B. D. Fellow of C. C. C. Oxon. This table and method are similar to those described in chap. 14 of Briggs's *Arith. Logar.* differing only in this, that in this table by Mr. Long, the logarithms, in each class, are in arithmetical progression, the common difference being 1; but in Briggs's little table the column of natural numbers has the like common difference. The table consists of eight classes of logarithms and their corresponding numbers as follows:

Lo.	Nat. Num.	Log.	Nat. Num.	Log.	Nat. Num.	Log.	Nat. Num.
,9	7,943282347	,009	1,020939484	,00009	1,000207254	,0000009	1,000002072
,8	6,309573445	8	1,018591388	8	1,000184224	8	1,000001842
,7	5,011872336	7	1,016248694	7	1,000161194	7	1,000001611
,6	3,981071706	6	1,013911386	6	1,000138165	6	1,000001381
,5	3,162277660	5	1,011579454	5	1,000115136	5	1,000001151
,4	2,511886432	4	1,009252886	4	1,000092106	4	1,000000921
,3	1,995262315	3	1,006931669	3	1,000069080	3	1,000000690
,2	1,584893193	2	1,004615794	2	1,000046053	2	1,000000460
,1	1,258925412	1	1,002305238	1	1,000023026	1	1,000000230
,09	1,230268771	,0009	1,002074475	,000009	1,000020724	,00000009	1,000000207
8	1,202264435	8	1,001843766	8	1,000018421	8	1,000000184
7	1,174897555	7	1,001613109	7	1,000016118	7	1,000000161
6	1,148153621	6	1,001382506	6	1,000013816	6	1,000000138
5	1,122018454	5	1,001151956	5	1,000011513	5	1,000000115
4	1,096478196	4	1,000921459	4	1,000009210	4	1,000000092
3	1,071519305	3	1,000691015	3	1,000006908	3	1,000000069
2	1,047128548	2	1,000460623	2	1,000004605	2	1,000000046
1	1,023292992	1	1,000230285	1	1,000002302	1	1,000000023

where,

where, because the logarithms in each class are the continual multiples 1, 2, 3, &c, of the lowest, it is evident that the natural numbers are so many scales of geometrical proportionals, the lowest being the common ratio, or the ascending numbers are the 1, 2, 3, &c powers of the lowest, as expressed by the figures 1, 2, 3, &c of their corresponding logarithms. Also the last number in the first, second, third, &c class, is the 10th, 100th, 1000th, &c root of 10; and any number in any class is the 10th power of the corresponding number in the next following class.

To find the logarithm of any number, as suppose of 2000, by this table: Look in the first class for the number next less than the first figure 2, and it is 1,995262315, against which is 3 for the first figure of the logarithm sought. Again, dividing 2 the number proposed by 1,995262315 the number found in the table, the quotient is 1,002374467; which being looked for in the second class of the table, and finding neither its equal nor a less, 0 is therefore to be taken for the second figure of the logarithm; and the same quotient 1,002374467 being looked for in the third class, the next less is there found to be 1,002305238, against which is 1 for the third figure of the logarithm; and dividing the quotient 1,002374467 by the said next less number 1,002305238, the new quotient is 1,000069070; which being sought in the fourth class gives 0, but sought in the fifth class gives 2, which are the fourth and fifth figures of the logarithm sought: again, dividing the last quotient by 1,000046053 the next less number in the table, the quotient is 1,000023015, which gives 9 in the 6th class for the 6th figure of the logarithm sought: and again dividing the last quotient by 1,000020724 the next less number, the quotient is 1,000002291, the next less than which in the 7th class gives 9 for the 7th figure of the logarithm: and dividing the last quotient by 1,000002072, the quotient is 1,000000219, which gives 9 in the 8th class for the 8th figure of the logarithm: and again the last quotient 1,000000219 being divided by 1,000000207 the next less, the quotient 1,000000012 gives 5 in the same 8th class, when one figure is cut off, for the 9th figure of the logarithm sought. All which figures collected together give 3,301029995 for Briggs's logarithm of 2000, the index 3 being supplied; which logarithm is true in the last figure.

To find the number answering to any given logarithm, as suppose to 3,3010300: omitting the characteristic, against the other figures 3,0,1,0,3,0,0, as in the first column in the margin, are the several numbers as in the 2d column, found from their respective 1st, 2d, 3d, &c classes; the effective numbers of which multiplied continually together, the

3	1,995262315
00	
1	1,002305238
00	
3	1,000069080
00	
00	

last product is 2,000000019966, which, because the characteristic is 3, gives 2000,000019966 or 2000 only for the required number answering to the given logarithm.

Of Mr. Jones's Method.

In the 61st volume of the Philosophical Transactions, is a small paper on logarithms, which had been drawn up and left unpublished, by the learned and ingenious William Jones, Esq. The method contained in this memoir, depends on an application of the doctrine of fluxions, to some properties drawn from the nature of the exponents of powers. Here all numbers are considered as some certain powers of a constant determinate root: so any number x may be considered as the z power of any root r , or that $x = r^z$ is a general expression of all numbers in terms of the constant root r and a variable exponent z . Now the index z being the logarithm of the number x , therefore to find this logarithm, is the same thing as to find what power of the radical r is equal to the number x .

From this principle, the relation between the fluxions of any number x and its logarithm z is thus determined: put $r = 1 + n$; then is $x = r^z = \overline{1+n}^z$, and $x + \dot{x} = \overline{1+n}^{z+\dot{z}} = \overline{1+n}^z \times \overline{1+n}^{\dot{z}} = x \times \overline{1+n}^{\dot{z}} =$ (by expanding $\overline{1+n}^{\dot{z}}$, omitting the 2d, 3d, &c powers of \dot{z} , and writing q for $\frac{n}{1+n}$) $x + x\dot{z} \times : q + \frac{1}{2} q^2 + \frac{1}{3} q^3 + \frac{1}{4} q^4$ &c;

therefore $\dot{x} = ax\dot{z}$, putting a for the series $q + \frac{1}{2} q^2 + \frac{1}{3} q^3$ &c,

or $f\dot{x} = x\dot{z}$, putting $f = \frac{1}{a}$.

Now when $r = 1 + n = 10$, as in the common logarithms of Briggs's form; then $n = 9$, $q = .9$, and the series $q + \frac{1}{2} q^2 + \frac{1}{3} q^3$ &c gives $a = 2,302585$ &c, and therefore its reciprocal $f = .434294$ &c. But if $a = 1 = f$, the form will be that of Napier's logarithms.

From the above form $x\dot{z} = f\dot{x}$, or $\dot{z} = \frac{f\dot{x}}{x}$, are then deduced many curious and general properties of logarithms, with the several series heretofore given by Gregory, Mercator, Wallis, Newton, and Halley. But of all these series, that one which our author selects for constructing the logarithms, is this; putting $N = \frac{r-p}{r+p}$, the logarithm of $\frac{r}{p}$ is $= 2f \times : N + \frac{1}{3} N^3 + \frac{1}{5} N^5 + \frac{1}{7} N^7$ &c in the case in which $r-p$ is $= 1$, and consequently then $N = \frac{1}{2r-1}$ or $\frac{1}{2p+1}$; which series will then converge very fast.

Hence, having given any numbers, p , q , r , &c, and as many ratios a , b , c , &c, composed of them, the difference between the two terms of each ratio being 1; as also the logarithms A , B , C , &c of

of those ratios given : to find the logarithms P , Q , R , &c of those numbers; supposing $f = 1$. For instance, if $p = 2$, $q = 3$, $r = 5$; and $a = \frac{9}{8} = \frac{3^2}{2^3}$, $b = \frac{16}{15} = \frac{2^4}{3 \cdot 5}$, $c = \frac{25}{24} = \frac{5^2}{3 \cdot 2^3}$. Now the logarithms A , B , C , of these ratios a , b , c , being found by the above series, from the nature of powers we have these three equations,

$$\left. \begin{aligned} A &= 2Q - 3P \\ B &= 4P - Q - R \\ C &= 2R - Q - 3P \end{aligned} \right\} \text{which equations reduced give} \left\{ \begin{aligned} P &= 3A + 4B + 2C = \log. \text{ of } 2, \\ Q &= 5A + 6B + 3C = \log. \text{ of } 3, \\ R &= 7A + 9B + 5C = \log. \text{ of } 5. \end{aligned} \right.$$

And hence $P + R = 10A + 13B + 7C$ is = the logarithm of 2×5 or 10.

An elegant tract on logarithms, as a comment on Dr. Halley's method, was also given by Mr. Jones in his *Synopsis Palmariorum Matheseos*, published in the year 1706. And in the Philosophical Transactions he communicated various improvements in gonio-metrical properties, and the series relating to the circle and to trigonometry.

The memoir above described was delivered to the Royal Society by their then librarian, Mr. John Robertson, a worthy, ingenious, and industrious man; who also communicated to the Society several little tracts of his own relating to logarithmical subjects: he was also the author of an excellent Treatise on the Elements of Navigation in two volumes; and he was successively mathematical master to Christ's hospital in London; head master to the royal naval academy at Portsmouth; and librarian, clerk, and housekeeper to the Royal Society; at whose house, in Crane Court, Fleet Street, he died in 1776, aged 64 years.

And among the papers of Mr. Robertson, I have, since his death, found one containing the following particulars relating to Mr. Jones, which I here insert, as I know of no other account of his life, &c. and as any true anecdotes of such extraordinary men must always be acceptable to the learned. This paper is not in Mr. Robertson's hand writing, but in a kind of running law-hand, and is signed R. M. 12 Sept. 1771.

“ William Jones, Esq. F. R. S. was born at the foot of Bodavon mountain, [Mynydd Bodafon] in the parish of Llanfihangel tre'r Bardd, in the isle of Anglesey, North Wales, in the year 1675. His father John George * was a farmer, of a good family, being descended from Hwfa ap Cynddelw, one of the 15 tribes of North Wales. He gave his two sons the common school education of the country, reading, writing, and accounts, in English, and the Latin

* “It is the custom in several parts of Wales for the name of the father to become the surname of his children. John George the father was commonly called Sion Sion of Llanbabo, to which parish he moved, and where his children were brought up.”

grammar. Harry his second son took to the farming business; but William the eldest, having an extraordinary turn for mathematical studies, determined to try his fortune abroad from a place where the same was but of little service to him; he accordingly came to London, accompanied by a young man Rowland Williams, afterwards an eminent perfumer in Wych Street. The report in the country is, that Mr. Jones soon got into a merchant's counting house, and so gained the esteem of his master, that he gave him the command of a ship for a West India voyage; and that upon his return he set up a mathematical school, and published his book of navigation*; and that upon the death of the merchant he married his widow: that Lord Macclesfield's son being his pupil, he was made secretary to the chancellor, and one of the D. tellers of the exchequer—and they have a story of an Italian wedding which caused great disturbance in Lord Macclesfield's family, but compromised by Mr. Jones; which gave rise to a saying, that Macclesfield was the making of Jones, and Jones the making of Macclesfield."

Mr. Jones died July 3, 1749, being vice-president of the Royal Society; and left one daughter, and his widow with child, which proved a son, who is the present Sir William Jones, now one of the judges in India, and highly esteemed for his great abilities, extensive learning, and eminent patriotism.

Of Mr. Andrew Reid and Others:

Andrew Reid, Esq. published in 1767 a quarto tract under the title of *An Essay on Logarithms*, in which he also shews the computation of logarithms from principles depending on the binomial theorem and the nature of the exponents of powers, the logarithms of numbers being here considered as the exponents of the powers of 10. He hence brings out the usual series for logarithms, and largely exemplifies Dr. Halley's most simple construction.

Besides the authors whose methods have been here particularly described, many others have treated on the subjects of logarithms, and of the sines, tangents, secants, &c; among the principal of whom are Leibnitz, Euler, Maclaurin, Wolfius, and professor Simson in an elegant geometrical tract on logarithms, contained in his posthumous works, elegantly printed in 4to. at Glasgow in the year 1776, at the expence of the very learned Earl Stanhope, and by his Lordship disposed of in presents among gentlemen most eminent for mathematical learning.

* This tract on navigation, intituled, "A New Compendium of the whole Art of Practical Navigation," was published in 1702, and dedicated "to the reverend and learned Mr. John Harris M. A. and F. R. S." the author I apprehend of the "Universal Dictionary of Arts and Sciences," under whose roof Mr. Jones says he composed the said treatise on Navigation.

Of Mr. Dodson's Anti-logarithmic Canon.

The only remaining considerable work of this kind published, that I know of, is the Anti-logarithmic Canon of Mr. James Dodson, a very ingenious mathematician, which work he published in folio in the year 1742; a very great performance, containing all logarithms under 100000, and their corresponding natural numbers to 11 places of figures, with all their differences and the proportional parts; the whole arranged in the order contrary to that used in the common tables of numbers and logarithms, the exact logarithms being here placed first, and increasing continually by 1, from 1 to 100000, and their corresponding nearest numbers in the columns opposite to them; and by means of the differences and proportional parts, the logarithm to any number, or the number to any logarithm, each to 11 places of figures, is readily found. This work contains also, besides the construction of the natural numbers to the given logarithms, "precepts and examples, shewing some of the uses of logarithms, in facilitating the most difficult operations in common arithmetic, cases of interest, annuities, mensuration, &c; to which is prefixed an introduction, containing a short account of logarithms, and of the most considerable improvements made, since their invention, in the manner of constructing them."

The manner in which these numbers were constructed, consists chiefly in imitations of some of the methods before described by Briggs, and is nothing more than generating a scale of 100000 geometrical proportionals from 1 the least term to 10 the greatest, each continued to 11 places of figures; and the means of effecting this are such as easily flow from the nature of a series of proportionals, and are briefly as follows. First between 1 and 10 are interposed 9 mean proportionals; then between each of these 11 terms there are interposed 9 other means, making in all 101 terms; then between each of these a 3d set of 9 means, making in all 1001 terms; again between each of these a 4th set of 9 means, making in all 10001 terms; and lastly between each two of these terms, a 5th set of 9 means, making in all 100001 terms, including both the 1 and the 10. The first four of these 5 sets of means, are found each by one extraction of the 10th root of the greater of the two given terms, which root is the least mean, and then multiplying it continually by itself according to the number of terms in the section or set; and the 5th or last section is made by interposing each of the 9 means by help of the method of differences before taught. Namely, putting 10 the greatest term = A, $A^{\frac{1}{10}} = B$, $B^{\frac{1}{10}} = C$, $C^{\frac{1}{10}} = D$, $D^{\frac{1}{10}} = E$, and $E^{\frac{1}{10}} = F$; now extracting the 10th root of A or 10, it gives 1,2589254118 = B = $A^{\frac{1}{10}}$ for the least of the 1st set of means; and then multiplying it continually by itself, we have B, B², B³, B⁴, &c

&c to $B^{10} = A$ for all the 10 terms: 2dly, the 10th root of 1,2589254118 gives $1,0232929923 = C = B^{\frac{1}{10}} = A^{\frac{1}{100}}$ for the least of the 2d class of means, which being continually multiplied gives $C, C^2, C^3, \&c$ to $C^{100} = B^{10} = A$ for all the 2d class of 100 terms: 3dly, the 10th root of 1,0232929923 gives $1,0023052381 = D = C^{\frac{1}{10}} = B^{\frac{1}{1000}} = A^{\frac{1}{10000}}$ for the least of the 3d class of means, which being continually multiplied gives $D, D^2, D^3, \&c$ to $D^{1000} = C^{100} = B^{10} = A$ for the 3d class of 1000 terms: 4thly, the 10th root of 1,0023052381 gives $1,0002302850 = E = D^{\frac{1}{10}} = C^{\frac{1}{1000}} = B^{\frac{1}{100000}} = A^{\frac{1}{1000000}}$ for the least of the 4th class of means, which being continually multiplied gives $E, E^2, E^3, \&c$ to $E^{10000} = D^{1000} = C^{100} = B^{10} = A$ for the 4th class of 10000 terms. Now these 4 classes of terms thus produced, require no less than 11110 multiplications of the least means by themselves; which however are much facilitated by making a small table of the first 10 or even 100 products of the constant multiplier, and from thence only taking out the proper lines and adding them together: and these 4 classes of numbers always prove themselves at every 10th term, which must always agree with the corresponding successive terms of the preceding class. The remaining 5th class is constructed by means of differences, being much easier than the method of continual multiplication, the 1st and 2d differences only being used, as the 3d difference is too small to enter the computation of the sets of 9 means between each two terms of the 4th class. And the several 2d differences for each of these sets of 9 means, are found from the properties of a set of proportionals 1, $r, r^2, r^3, \&c$, as disposed in the 1st column of the annexed table, and their several orders of differences as in the other columns of the table; where it is evident that each column, both that of the given terms of the progression, and those of their orders of differences, forms a scale of proportionals, having the same common ratio r ; and that each horizontal line or row forms a geometrical progression having all the same common ratio $r-1$, which is also the 1st difference of each set of means; so $r-1$ is the 1st of the 2d differences, and which is constantly the same, as the 3d differences become too small in the required terms of our progression to be regarded, at least near the beginning of the table: hence, like as 1, $r-1$, and $r-1$ are the 1st term with its 1st and 2d differences; so $r^n, r^n \cdot r-1$, and $r^n \cdot r-1$ are any other term with its 1st and 2d differences. And by this rule the 1st and 2d differences are to be found for every set of 9 means, viz. multiplying the 1st term

Terms	1st dif.	2d dif.	3d dif.	&c
1 \times	$r-1 \times$	$r-1^2 \times$	$r-1^3 \times$	
1	1	1	1	$\&c$
r	r	r	r	
r^2	r^2	r^2	r^2	
r^3	r^3	r^3	r^3	
$\&c$	$\&c$	$\&c$	$\&c$	

term of any class (which will be the several terms of the series $E, E^2, E^3, \&c$, or every 10th term of the series $F, F^2, F^3, \&c$) by $r-1$ or $F-1$ for the 1st difference, and this multiplied by $F-1$ again for the true 2d difference at the beginning of that class. Thus the 10th root of 1,0002302850 or E gives 1,000023026116 for F or the 1st mean of the lowest class, therefore $F-1 = r-1 = ,000023026116$ is its 1st difference, and the square of it is $(r-1)^2 = ,0000000005302$ its 2d difference; then is $,000023026116F^{10n}$ or $,000023026116E^n$ the 1st difference, and $,0000000005302F^{20n}$ or $,0000000005302E^{2n}$ is the 2d difference at the beginning of the n th class of decades. And this 2d difference is used as the constant 2d difference through all the 10 terms, except towards the end of the table where the differences increase fast enough to require a small correction of the 2d difference, and which Mr. Dodson effects by taking a mean 2d difference among all the 2d differences in this manner; having found the series of 1st differences $\overline{F-1} \cdot E^n, \overline{F-1} \cdot E^{n+1}, \overline{F-1} \cdot E^{n+2}, \&c$, take the differences of these, and $\frac{1}{10}$ of them will be the mean 2d differences to be used, namely $\frac{F-1}{10} \cdot \overline{E^{n+1} - E^n}, \frac{F-1}{10} \cdot \overline{E^{n+2} - E^{n+1}}, \&c$ are the mean 2d differences. And this is not only the more exact but also the easier way. The common 2d difference and the successive 1st differences are then continually added through the whole decade, to give the successive terms of the required progression.

D E S C R I P T I O N

A N D U S E O F

L O G A R I T H M I C T A B L E S.

ALTHOUGH the nature and construction of logarithms have been pretty fully treated in the preceding history of such numbers, where the more learned and curious reader will find abundant satisfaction, I shall here give a brief, easy, and familiar idea of these matters, for the practical use of young students in this subject.

The Definition and Notation of Logarithms.

Logarithms are the indices, or arithmetical series of numbers, adapted to the terms of a geometrical series, in such sort that 0 corresponds to, or is the index of, 1 in the geometricals.

Thus	{	0	1	2	3	4	5,	&c.	indices or logarithms,
		1	2	4	8	16	32,	&c.	geometric progression.
or	{	0	1	2	3	4	5,	&c.	indices or logarithms,
		1	3	9	27	81	243,	&c.	geometric series.
or	{	0	1	2	3	4	5,	&c.	indices or logarithms,
		1,	10,	100,	1000,	10000,	100000,	&c.	geometric series.

Where the same indices serve equally for any geometric series; and from which it is evident that there may be an endless variety of systems of logarithms to the same common numbers, by varying the 2d term 2, or 3, or 10, &c, of the geometric series; as this will change the original series of terms whose indices are the whole numbers, 1, 2, 3, &c; and by interpolation the whole system of numbers may be made to enter the geometrical series, and receive their proportional logarithms, whether integers or decimals.

Or, the logarithm of any number is the index of that power of some other number, which is equal to the given number. So if $N = r^n$, then the logarithm of N is n , which may be either positive or negative, and r any number whatever, according to the different systems of logarithms. When N is 1, then $n = 0$, whatever the value of r is; and consequently the logarithm of 1 is always 0 in every system of logarithms. When n is $= 1$, then N is $= r$; consequently r is always the number whose logarithm is 1 in every system. When r is $= 2.718281828459$ &c, the indices are the hyperbolic logarithms, such as in our 7th table; so that n is the hyperbolic logarithm of 2.718 &c.ⁿ. But in the common logarithms r is

is $= 10$; so that the common logarithm of any number (10^n) is (n) the index of that power of 10 which is equal to the said number. So 1000, being the 3d power of 10, has 3 for its logarithm; and if 50 be $= 10^{1.69897}$, then is 1.69897 the common logarithm of 50. And hence it follows that this decimal series of terms

$10^4, 10^3, 10^2, 10^1, 10^0, 10^{-1}, 10^{-2}, 10^{-3}, 10^{-4},$
 or 10000, 1000, 100, 10, 1, .1, .01, .001, .0001,
 have 4, 3, 2, 1, 0, -1, -2, -3, -4,
 respectively for their logarithms.

The logarithm of a number comprehended between any two terms of the first series, is included between the two corresponding terms of the latter, and therefore that logarithm will consist of the same index (whether positive or negative) as the less of those two terms, together with a decimal fraction, which will always be positive. So the number 50, falling between 100 and 10, its logarithm will fall between 2 and 1, and is $= 1.69897$, the index of the less term together with the decimal .69897: also the number .05, falling between the terms .1 and .01, its logarithm will fall between -1 and -2, and is indeed $= -2 + .69897$, the index of the less term together with the decimal .69897. The index is also called the characteristic of the logarithms, and is always an integer, either positive or negative, or else $= 0$; and it shews what place is occupied by the first significant figure of the given number, either above or below the place of units, being in the former case + or positive, in the latter - or negative.

When the characteristic of a logarithm is negative, the sign - is commonly set over it, to distinguish it from the decimal part, which being the logarithm found in the tables, is always positive: so $-2 + .69897$, or the logarithm of .05, is written thus $\bar{2}.69897$. But on some occasions it is convenient to reduce the whole expression to a negative form; which is done by making the characteristic figure less by 1, and taking the arithmetical complement of the decimal, that is, beginning at the left hand, subtract each figure from 9, except the last significant figure, which subtract from 10; so shall the remainders form the logarithm intirely negative. Thus the logarithm of .05, which is $\bar{2}.69897$ or $-2 + .69897$, is also expressed by -1.30103 , which is wholly negative. It is also sometimes thought more convenient to express such logarithms wholly as positive, namely by only joining to the tabular decimal the complement of the index to 10; in which way the above logarithm is expressed by 8.69897 ; which is only increasing the indices in the scale by 10. It is also convenient, in many operations with logarithms, to take their arithmetical complements, which is done by beginning at the left hand, and subtracting every figure from 9, but the last figure from 10: so the arithmetical complement of 1.69897 { and of $\bar{2}.69897$ } where the index -2, being negative, is 8.30103, { it is 11.30103, } tive, is added to 9, and makes 11.

The Properties of Logarithms.

From the definition of logarithms, either as being the indices of a series of geometricals, or as the indices of the powers of the same root, it follows that the multiplication of the numbers will answer to the addition of their logarithms; the division of numbers to the subtraction of their logarithms; the raising of powers, to the multiplying the logarithm of the root by the index of the power; and the extracting of roots, to the dividing the logarithm of the given number by the index of the root required to be extracted: So

1st. $L. ab$ or $a \times b$ is $= L. a + L. b$

$L. 18$ or 3×6 is $= L. 3 + L. 6$

$L. 5 \times 9 \times 73$ is $= L. 5 + L. 9 + L. 73$

2d. $L. a \div b$ is $= L. a - L. b$

$L. 18 \div 6$ is $= L. 18 - L. 6$

$L. 79 \times 5 \div 9$ is $= L. 79 + L. 5 - L. 9$

$L. \frac{1}{2}$ or $1 \div 2$ is $= L. 1 - L. 2 = 0 - L. 2 = -L. 2$

$L. \frac{1}{n}$ or $1 \div n$ is $= -L. n$

3d. $L. r^m$ is $= n L. r$; $L. r^{\frac{1}{n}}$ or $L. \sqrt[n]{r}$ is $= \frac{1}{n} L. r$; $L. r^{\frac{m}{n}}$ is $= \frac{m}{n} L. r$.

$L. 2^6$ is $= 6 L. 2$; $L. 2^{\frac{1}{3}}$ or $L. \sqrt[3]{2}$ is $= \frac{1}{3} L. 2$; $L. 2^{\frac{3}{5}}$ is $= \frac{3}{5} L. 2$.

So that any number and its reciprocal have the same logarithm, but with contrary signs; and the sum of the logarithms of any number and its complement, is equal to 0.

To construct Logarithms.

It has been shewn in the foregoing historical part, that the logarithm of $\frac{b}{a}$ is $= \frac{2}{m} \times : \frac{x}{z} + \frac{x^3}{3z^3} + \frac{x^5}{5z^5} + \frac{x^7}{7z^7} \&c$; where z is the sum, and x the difference of a and b ; also $m = 2.302585092994 \&c$, the hyp. logarithm of 10. Therefore if a and b be any two numbers differing only by unity, so that x or $b - a$ may be $= 1$; then shall the logarithm of b be $= L. a + \frac{2}{m} \times : \frac{1}{z} + \frac{1}{3z^3} + \frac{1}{5z^5} \&c$.

Which gives this rule in words at length: call z the sum of any number (whose logarithm is sought) and the number next less by unity; divide .8685889638 &c (or $2 \div 2.3025 \&c$) by z , and reserve the quotient; divide the reserved quotient by the square of z , and reserve this quotient; divide this last quotient also by the square of z , and again reserve this quotient: and thus proceed continually dividing the last quotient by the square of z , as long as division can be

be made. Then write these quotients orderly under one another, the first uppermost, and divide them respectively by the uneven numbers 1, 3, 5, 7, 9, 11, &c, as long as division can be made; that is, divide the first reserved quotient by 1, the 2d by 3, the 3d by 5, the 4th by 7, &c. Add all these last quotients together, and the sum will be the logarithm of $b \div a$; and therefore to this logarithm add also the logarithm of a the next less number, and the sum will be the required logarithm of b the number proposed.

Ex. 1. To find the Log. of 2.

Here the next less number is 1, & $2 \div 1 = 2 = z$, whose square is 9. Then

3)	868588964	1)	289529654	(	289529654
9)	289529654	3)	32169962	(	10723321
9)	32169962	5)	3574440	(	714888
9)	3574440	7)	397160	(	56737
9)	397160	9)	44129	(	4903
9)	44129	11)	4903	(	446
9)	4903	13)	545	(	42
9)	545	15)	61	(	4
9)	61				

Log. $\frac{2}{1}$ - - - 301029995
 Add L. 1 - 000000000
 Log. of 2 - 301029995

Ex. 2. To find the Log. of 3.

Here the next less number is 2, and $2 \div 3 = \frac{2}{3} = z$, whose square is $\frac{4}{9}$, to divide by which always multiply by .04. Then

5)	868588964	1)	173717793	(	173717793
25)	173717793	3)	6948712	(	2315237
25)	6948712	5)	277948	(	55590
25)	277948	7)	11118	(	1588
25)	11118	9)	448	(	50
25)	445	11)	18	(	2
	18				

L. $\frac{2}{3}$ - - - 176091260
 L. 2 add - 301029995
 L. 3 - - - 477121255

Then because the sum of the logarithms of numbers gives the logarithm of their product, and the difference of the logarithms gives the logarithm of the quotient of the numbers, from the above two logarithms, and the logarithm of 10, which is 1, we may raise a great many logarithms thus:

Ex. 3. Because $2 \times 2 = 4$, therefore
 to L. 2 - - - 301029995
 add L. 2 - - - 301029995
 sum is L. 4 - 602059991

Ex. 4. Because $2 \times 3 = 6$, therefore
 to L. 2 - - - 301029995
 add L. 3 - - - 477121255
 sum is L. 6 - 778151250

Ex. 5. Because $2^3 = 8$, therefore
 L. 2. - - - 301029995
 mult. by - - - 3
 gives L. 8 - 903089987

Ex. 6. Because $3^2 = 9$, therefore
 L. 3 - - - 477121255
 mult. by - - - 2
 gives L. 9 - 954242509

Ex. 7. Because $\frac{10}{2} = 5$, therefore
 from L. 10 - 1000000000
 take L. 2 - - 301029995
 leaves L. 5 - 698970004

Ex. 8. Because $12 = 3 \times 4$, therefore
 to L. 3 - - - 477121255
 add L. 4 - - - 602059991
 gives L. 12 - 1079181246

And thus by computing, by the general rule, the logarithms of the other prime numbers 7, 11, 13, 17, 19, 23, &c; and then using composition and division, we may easily find as many logarithms as we please, or may speedily examine any logarithm in the table.

THE

THE DESCRIPTION AND USE OF THE TABLES.

THE following collection consists of various tables, in this order, viz. 1, A large table of logarithms to 7 places of figures; 2, A table for finding logarithms and numbers to 20 places; 3, Logarithms to 20 places, with their 1st, 2d, and 3d differences; 4, Another table of logarithms to 20 places, with their 1st, 2d, and 3d differences; 5, Logarithms to 61 places; 6, Another table of logarithms to 61 places, with their 1st, 2d, 3d, and 4th differences; 7, Hyperbolic logarithms; 8, Logistic logarithms; 9, Logarithmic sines and tangents to every second of the first 2 degrees; 10, Natural and logarithmic sines, tangents, secants, and versed sines, with their differences to every minute of the quadrant. After which follow several smaller tables; as a table of the lengths of circular arcs; a traverse table, or table of difference of latitude and departure, to every degree and quadrant point of the compass; a table for changing the common logarithms into hyperbolic logarithms; and a table of the names and number of degrees &c. in every point of the compass; as also lists of errata in various works of this sort. Of each of which in their order.

Of the large Table of Logarithms.

The first is the large table of logarithms to all numbers from 1 to 100000, by which may be found the logarithm to any number and the number to any logarithm to 7 places of figures. This table consists of two parts; the first contains, in 4 pages, the first 1000 numbers with their corresponding logarithms in adjacent columns; the second contains all the 100000 numbers and their logarithms, with the differences and proportional parts, disposed as follows: in the 1st column of each page are the first 4 figures of the numbers, and along the top and bottom of the columns is the 5th figure, in which columns are placed all the logarithms, the first 3 figures of each logarithm being at the beginning of the lines in the first column of logarithms, signed 0 at the top and bottom, and the other 4 figures in the remaining columns. After the 10 columns of logarithms stands their column of differences, signed 10; and lastly after that, as also at the bottom of some pages, the column of proportional parts, signed pro. pts. shewing what proportional part of each difference corresponds to 1, 2, 3, &c. the whole difference answering to 10; or shewing the $\frac{1}{10}$, $\frac{2}{10}$, $\frac{3}{10}$, &c. of the differences.

Note, the logarithms in these columns are all supposed to be decimals, and their corresponding natural numbers may be either integers or decimals or mixt numbers, for the same figures, whatever be their

their denomination, have the same decimal logarithm, and these differ only in the index or characteristic, which is the integer number to be prefixed to the decimal part of the logarithm; and this is always the number which expresses the distance of the highest denomination, or left-hand figure, of the natural number, from the units place. So that if the natural number consist of only one place of integers, the index of its log. will be 0; if of 2, 3, 4, 5, &c, the index of its logarithm will be respectively 1, 2, 3, 4, &c, being 1 less than the number of integer places: and the same figures made negative will give the index of the logarithm of a decimal, viz. if the natural number be a decimal, and its first significant figure be in the place of primes, 2ds, 3ds, 4ths, &c. the index of its logarithm will be respectively $\overline{1}$, $\overline{2}$, $\overline{3}$, $\overline{4}$, &c. till the figure which expresses the distance of the first place of the natural number from the units place, but with a negative sign, as the number is below the place of units, the sign being written above the index instead of before it, as that part only of the logarithms is to be considered as negative, the decimal part of it being always affirmative. And in the arithmetical operations of addition and subtraction with logarithms, the negative indexes will have the contrary effect to that of the decimal part of the logarithm, viz. when the logarithm is to be added, the figure of the negative index must be subtracted, & *vice versa*. Hence if 423409 be the tabular or decimal part of the logarithm belonging to the figures 2651, without any regard to their particular denominations; then according as they are varied with respect to the number of decimals, as in the 1st annexed column, the index of their logarithm, and the complete logarithm, will vary as in the 2d column here annexed. And hence, like as when the natural number is given, we find the index of its logarithm by counting how far its first figure on the left hand is from the units place; so when a logarithm is given, the denominations of the figures in its natural number will be found by placing the decimal point so, that the number of integer places may be 1 more than that of the index when positive, or by setting the first significant figure in that decimal place, which is expressed by the number of the index when negative.

Number	Logar.
2651	3.4234097
$\overline{2}651$	2.4234097
$\overline{2}6\overline{5}1$	1.4234097
$\overline{2}\overline{6}51$	0.4234097
$\overline{2}6\overline{5}1$	$\overline{1}$.4234097
$\overline{0}2651$	$\overline{2}$.4234097
$\overline{00}2651$	$\overline{3}$.4234097

Of finding the Logarithm of a given Number, or the Number to a given Logarithm.

1. *To find the Logarithm of a Number consisting of 3 Figures.*

Find the number in the column of numbers in one of the first 4 pages of the table, and immediately on the right of it is its logarithm sought. So the logarithm of 72 is 1.8573325, and the logarithm of 3.33 is 0.5224442, when the proper index is supplied.

2. *To*

2. To find the Logarithm of a Number consisting of 4 Places.

In the first column (signed N) in some one of the pages of the table after the first four, find the given number, then against it in the 2d column (signed O) is the logarithm sought. So the logarithm of 2254 is 3.3529539, and that of 31.32 is 1.4958218.

3. To find the Logarithm of a Number consisting of 5 Places.

Find the first 4 figures of the given number in the first column as before, and the 5th figure at the top or bottom; then the 7 figures of the logarithm are found in two columns on the line of the first 4 figures of the given number, viz. the first 3 figures of the logarithm are the first 3 common figures of the 2d column (signed O), and the last 4 figures are on the same line, but in the column signed with the 5th figure of the given number. So the logarithm of 23204 is 4.3655629, and that of 746.40 is 2.8729716, and that of .083178 is 2.9200085.

Note, When the last four figures of the logarithm begins with a cipher, or any figure less than the last four in the 2d column begins with, then the first 3 common figures are those in the next lower line: so in the last example the first 3 common figures are 920, and not 919.

4. To find the Logarithm of a Number of 6 Places.

Find the logarithm of the first 5 figures by the last article, and take the difference between that logarithm and the next following logarithm, or (which is the same) find the difference nearest opposite in the last column but one, signed D; then under that difference in the last column (of proportional parts) and against the 6th figure of the given number, is the part to be added to the logarithm before found for the first 5 figures, the sum being the logarithm sought. So to find the logarithm of 3409.26. The logarithm of 34092, the first 5 figures, being 5326525, and the common difference 127, under which and against 6 in the last column is 76, which being added to the former logarithm, and the proper index prefixed, we have 3.5326601 for the whole logarithm required.

5. To find the Logarithm of a Number of 7 Places.

Find the logarithm of the first five figures by the 3d article, and of the sixth figure by the 4th article; then for the logarithm of the 7th figure, divide its proportional part by 10, that is set it one place farther to the right hand than the last figure of the logarithm reaches; add all the three together, and their sum will be the logarithm required.

Thus

Thus to find the logarithm of 3'409264. The several parts being taken out according to rule, and placed as in the margin, the sum gives the whole logarithm sought.

Note, In the same way we might take out the proportional part of an 8th figure, dividing its tabular part by 100, or setting it two places farther to the right hand than the first logarithm. Or the whole proportional part for any number of figures above five, may be found at once by multiplying the common tabular difference of the logarithms, found as before, by all the figures after the 5th, cutting off from the product as many figures as we multiply by, and adding the rest to the logarithm of the first 5 figures before found. So in the last example above, having found the common difference 127, multiplying it by 64 the last two figures, cutting off two, add the rest to the logarithm of the first 5, as in the margin.

Numb.	Logar.
34092 - - -	5326525
6 - - -	76
4 - -	5,1
3'409264 -	0.5326606

127
64
508
762
81,23
5326525
0.5326606

For another example, suppose we wanted the logarithm of the following 8 figures 34092648. The operation by both methods will be as below.

34092 - - -	5326525	127
6 - - -	76	648
4 - - -	5,1	1016
8 - - -	1,02	508
34092648 - -	7.5326607	762
		82,296
		5326525
		7.5326607 the same as the other.

6. To find the Logarithm of a Vulgar Fraction, or of a Mixt Number.

Either reduce the vulgar fraction to a decimal, and find its logarithm as above. Or else (having reduced the mixt number to an improper fraction), subtract the logarithm of the denominator from the logarithm of the numerator, and the remainder will be the logarithm of the fraction sought.

Ex. 1. To find the log. of $\frac{3}{16}$ or 0.1875.
 From log. of 3 - - 0.4771213
 Take log. of 16 - - 1.2041200
 Rem. log. of $\frac{3}{16}$ or 0.1875 1.2730013

Ex. 2. To find the log. of $13\frac{3}{4}$ or $\frac{55}{4}$.
 From log. of 55 - - 1.7403627
 Take log. of 4 - - 0.6020600
 Leaves log. of $13\frac{3}{4}$ or 13.75 1.1383027

7. To find the natural Number answering to any given Logarithm.

Find the first 3 figures, next after the index of the given logarithm, in the second column, signed 0, and the other 4 figures on the same line in one of the nine following columns; if the figures of the logarithm be thus found exactly, on the same line in the first

column are the first four figures of the natural number, and the 5th is at the top or bottom of that column in which the last four figures of the log. were found. So to find the number answering to the logarithm 2.5890108. In pa. 64 I find the first three figures 589, and in column 6 of the line above are found the other four .0108, (because the first three common figures are supposed to begin at that part of the line above where they are placed); then on the same line in the column of numbers stand the first four figures 388.1, and 6 at the top of the column, making in all 388.16 for the number sought; having placed the decimal point so as to make three integers, being 1 more than 2 the index of the given logarithm.

But if the given logarithm be not found exactly in the table, subtract the next less tabular logarithm from it, and look for the remainder in the proportional parts under the difference between the two tabular logarithms next less and greater than the given logarithm, and against it, or the part next less, is a 6th figure to be annexed to the five figures before found. And if the remainder be not found exactly in the proportional parts, subtract the next less part from it, and annex a cypher to this 2d remainder, then against the nearest proportional part (either greater or less) is a 7th figure to be annexed to the six before found. And that figure will be the nearest to the truth in that place, either too much or too little.

Ex. To find the number answering to the logarithm 1.2335678. The next less tab. log. is the log. of 17122 viz. 2335545

1st rem.	133
	127
2d rem.	60
	51

The difference is 254, and the table of pro. pts. gives } - - 5 for the part
 } - - 2 for the part

So that the number sought is 17.12252, making two integers for the index 1.

Or the 6th and 7th figures may be found without the table of proportional parts, by dividing the first remainder by the tabular difference, annexing one cipher to the dividend for each figure to be found. So in the last example, the remainder 133, with two ciphers annexed, being divided by the tabular difference 254, as in the margin, the quotient gives 52 for the 6th and 7th figures, the same as before.

254)	133.00	(52
	127 0	
	600	
	508	

In like manner may be found the numbers to the following logarithms.

Logarithm. 1.2345678	3.7343003	1.0921406	2.3720468	4.6123004	3.2946809
Numb. 17.16200	5.423758	1.236348	.02355303	4.0954.39	1970.974

OF LOGARITHMICAL ARITHMETIC.

I. *Multiplication by Logarithms.*

Add together the logarithms of all the factors, and the sum is a logarithm, the natural number corresponding to which will be the product required.

Observing to add, to the sum of the affirmative indices, what is carried from the sum of the decimal parts of the logarithms.

And that the difference between the affirmative and negative indices is to be taken for the index to the logarithm of the product.

Ex. 1. To multiply 23.14 by 5.062.

23.14 its log. is 1.3643634

5.062 its log. is 0.7043221

Product 117.1347 - - 2.0686855

Ex. 3. To mult. 3.902, and 597.16, and .0314728 all together.

3.902 its log. is 0.5912873

597.16 - - 2.7760907

.0314728 - - 2.4979353

Prod. 73.33533 - - 1.8653133

The 2 cancels the 2, and the 1 to carry from the decimals is set down.

Ex. 2. To mul. 2.581926 by 3.457291.

2.581926 its log. is 0.4119438

3.457291 - - 0.5387359

Prod. 8.92647 - - 0.9506797

Ex. 4. To mult. 35.86, and 2.1046, and 0.8372, and 0.0294 all together.

35.86 its log. is 0.5546103

2.1046 - - 0.3231696

0.8372 - - 1.9228292

0.0294 - - 2.4683473

Prod. .1857618 - - 1.2689564

Here the 2 to carry cancels the 2, and there remains the 1 to set down.

II. *Division by Logarithms.*

From the logarithm of the dividend subtract the logarithm of the divisor, the remainder is a logarithm whose corresponding number will be the quotient required.

But first observe to change the sign of the index of the logarithm of the divisor, viz. from negative to affirmative, or from affirmative to negative; then take the sum of the indices if they be of the same kind, or their difference when of different signs, with the sign of the greater, for the index to the logarithm of the quotient.

And when 1 is borrowed in the left-hand place of the decimal part of the logarithm, add it to the index of the logarithm of the divisor when that index is affirmative, but subtract it when negative; then let the index thus found be changed, and worked with as before.

Ex. 1. To divide 24163 by 4567.
 Divid. 24163 its log. 4.3831509
 Divis. 4567 - - 3.6596310
 Quot. 5.290782 - 0.7235199

Ex. 3. To divide .06314 by .007241,
 Divid. .06314 its log. 2.8003046
 Divis. .007241 - 3.8597985
 Quot. 8.719792 - 0.9405061
 Here 1 carried from the decimals to the 3 makes it become 2, which taken from the other 2, leaves 0 remaining.

Ex. 2. To divide 37.149 by 523.76.
 Divid. 37.149 its log. 1.5699471
 Divis. 523.76 - - 2.7191323
 Quot. .07092752 - 2.8508148

Ex. 4. To divide .7438 by 12.9476.
 Divid. .7438 its log. 1.8714562
 Divis. 12.9476 - 1.1121893
 Quot. .05744694 - 2.7592669

Here the 1 taken from the 1 makes it become 2 to set down.

III. The Rule of Three, or Proportion.

Add the logarithms of the 2d and 3d terms together, and from their sum subtract the logarithm of the 1st, by the foregoing rules; the remainder will be the logarithm of the 4th term required.

Or in any compound proportion whatever, add together the logarithms of all the terms that are to be multiplied, and from that sum take the sum of the others; the remainder will be the logarithm of the term sought.

But instead of subtracting any logarithm, we may add its complement, and the result will be the same. By the complement is meant the logarithm of the reciprocal of the given number, or the remainder by taking the given logarithm from 0, or from 10, changing the radix from 0 to 10; the easiest method of doing which, is to begin at the left hand, and subtract each figure from 9, except the last significant figure on the right-hand, which must be subtracted from 10. But when the index is negative, add it to 9, and subtract the rest as before. And for every complement that is added, subtract 10 from the last sum of the indices,

Ex. 1. To find a 4th proportional to 72.34, and 2.519, and 357.4862.

As 72.34 - comp. log. 8.1406215
 To 2.519 - - 0.4012282
 So 357.4862 - - 2.5532592
 To 12.44827 - - 1.0951089

Ex. 3. To find a number in proportion to .379145 as .85132 is to .0649

As .0649 - comp. log. 11.1877553
 To .85132 - - 1.9300928
 So .379145 - - 1.5788054
 To 4.973401 - - 0.6966535

Ex. 2. To find a 3d proportional to 12.796 and 3.24718.

As 12.796 - comp. log. 8.8929258
 To 3.24718 - - 0.5115064
 So 3.24718 - - 0.5115064
 To .8240216 - - 1.9159386

Ex. 4. If the interest of 100l. for a year or 365 days be 4.5l. what will be the interest of 279.25l. for 274 days.

As { 100 } comp. log. { 8.0000000
 { 365 } { 7.4377071
 To { 279.25 - - 2.4459932
 { 274 - - 2.4377506
 So 4.5 - - 0.6532125
 To 9.433296 - - 0.9746634

IV. Invo-

IV. *Involution, or raising of Powers.*

Multiply the logarithm of the number given by the proposed index of the power, and the product will be the logarithm of the power sought.

Note, In multiplying a logarithm with a negative index by any affirmative number, the product will be negative.—But what is to be carried from the decimal part of the logarithm will be affirmative.—Therefore the difference will be the index of the product; and is to be accounted of the same kind with the greater.

Ex. 1. To find the 2d power of
 $2.5791.$
 Root 2.5791 its log. 0.4114682
 index - - - - 2
 Power 6.651756 - 0.8229364

Ex. 3. To find the 4th power of
 $.09163.$
 Root $.09163$ its log. 2.9620377
 index - - - - 4
 Power $.0000704938$ - 5.8481508
 Here 4 times the negative index being $\bar{8}$, and 3 to carry, the difference $\bar{5}$ is the index of the product,

Ex. 2. To find the cube of $3.07146.$
 Root 3.07146 its log. 0.4873449
 index - - - - 3
 Power 28.97575 - 1.4620347

Ex. 4. To find the 365th power of
 $1.0045.$
 Root 1.0045 its log. 0.0019499
 index - - - - 365
 97495
 116994
 58497
 Power 5.148888 - 0.7117135

V. *Evolution, or Extraction of Roots.*

Divide the logarithm of the power or given number, by its index, and the quotient will be the logarithm of the root required.

Note, When the index of the logarithm is negative, and the divisor is not exactly contained in it without a remainder, increase it by such a number as will make it exactly divisible; and carry the units borrowed, as so many tens, to the left-hand place of the decimal part of the logarithm; then divide the results by the index of the root.

Ex.

Ex. 1. To find the square root of

365.
Power 365 - - 2)2.5622929
Root 19.10498 - - 1.2811465

Ex. 3. To find the 10th root of 2.

Power 2 - - 10)0.3010300
Root 1.071773 - - 0.0301030

Ex. 5. To find the square root of

.093.
Power .093 - - 2)2.9684829

Root .304959 - - 1.4842415

Here the divisor 2 is contained exactly once in 2 the negative index, therefore the index of the quotient is 1.

Ex. 2. To find the cube root of

12345.
Power 12345 - - 3)4.0914911
Root 23.11162 - - 1.3638304

Ex. 4. To find the 365th root of

1.045.
Power 1.045 - - 365)0.0191163
Root 1.000121 - - 0.0000524

Ex. 6. To find the cube root of

.00048.
Power - - - 3)4.6812412

Root .07829735 - - 2.8937471

Here the divisor 3 not being exactly contained in 4, augment it by 2, to make it become 6, in which the divisor is contained just 2 times; and the 2 borrowed being carried to the other figures 6 &c, makes 2.6812412, which divided by 3 gives .8937471.

OF THE TABLES FOR LOGARITHMS TO TWENTY PLACES.

THES E are tables 2d, 3d, and 4th, beginning at page 187. Of these, table 2 contains all numbers from 1 to 1000, and all uneven numbers from 1000 to 1161; with their logarithms to twenty places: table 3 contains all numbers from 101000 to 101139, with their logarithms to twenty places, and the 1st, 2d, and 3d differences of those logarithms: and table 4 contains all logarithms regularly from 00001 to 00139, with their corresponding natural numbers to twenty places, as also the 1st, 2d, and 3d differences of those numbers. And by means of them may be found the logarithm to any other number, and the number to any other logarithm, to twenty places of figures.

(1.) *To find the Logarithms to given Numbers.*

CASE 1. If the given number *b* be found in any of these three tables; then its logarithm *B* is in the line even with it.

CASE 2. If *b* is known to be the product or quotient of numbers found in these tables; then *B* is the sum or difference of the logarithms of those numbers.

CASE

CASE 3. If a' , the first six significant figures of a given number b' , be found in table 3; let a' be an integer, A' its logarithm; δ the remaining figures of b' ; x the complement of δ to d' or 1; D' , D'' , D''' , the 1st, 2d, 3d differences of the logarithms in the same line with A' ; $f = \frac{1}{3} D''' \times x + 1 + D''$: Then B' the logarithm of the number b' will be

$$\left. \begin{array}{l} D' \times \delta + A' \quad - \quad - \quad \text{to } 12 \\ \frac{1}{3} x D'' + D' \times \delta + A' \quad - \quad - \quad \text{to } 17 \\ \frac{1}{2} x f + D' \times \delta + A' \quad - \quad - \quad \text{to } 20 \end{array} \right\} \text{places of figures nearly.}$$

Ex. 1. Given the number $b' = 0.01010,26227,6351$, to find B' its logarithm nearly to twelve places.

$$\begin{array}{rcl} \text{Here } a' = 101026. & A' = & 00443,31579,747 \\ \delta = 0.2276351 & \delta D' = & - - - + 9785,618 \\ D' = 429881746 & B' = & 2.00443,41365,365 \end{array}$$

Ex. 2. Given $b' = 0.01010,26227,63509,626$, to find B' its log. nearly to 17 places.

$$\begin{array}{rcl} \text{Here } a' = 101026. & & \\ \delta = 0.22763,509626; x = 0.772365; D' = 42988,174579; D'' = 425510. & & \end{array}$$

$$\begin{array}{rcl} \text{Now } \frac{1}{2} x D'' & & 16432,45 \\ D' & & 42988,17457,86 \\ \frac{1}{2} x D'' + D' & & 42988,33890,31 \\ \frac{1}{2} x D'' + D' \times \delta & & 9785,65466,42 \\ A' & & 00443,31579,74695,33 \end{array}$$

$$\text{And } \frac{1}{3} x D'' + D' \times \delta + A', \text{ or } B' = 2.00443,41365,40161,75$$

Ex. 3. Given $b' = 0.01010,26227,63509,62573,17345$, to find B' its log. nearly to 20 places.

$$\begin{array}{rcl} a' = 101026. & & \\ \delta = 0.22763,50962,573173; x = 0.77236,490374; x + 1 = 1.772365; & & \\ D' = 42988,17457,86301; D'' = 42550,96343; D''' = 84236. & & \end{array}$$

$$\begin{array}{rcl} \text{Now } \frac{1}{3} D''' \times x + 1 & & 49766 \\ D'' & & 42550,96343 \\ f & & 42551,46109 \\ \frac{1}{2} x f & & 16432,62757 \\ D' & & 42988,17457,86301 \\ \frac{1}{2} x f + D' & & 42988,33890,49058 \\ \frac{1}{2} x f + D' \times \delta & & 9785,65466,45604 \\ A' & & 00443,31579,74695,32791 \end{array}$$

$$\text{And } B' = 2.00443,41365,40161,78395$$

CASE 4. If the number b come under none of the preceding cases: put a for the first five figures of b ; n for 101, the least, or some one, of the numbers in table 3; then $\frac{a}{n}$ or $\frac{n}{a} = a$ is to be had in table 2, with A its logarithm; let $b' = \frac{b}{a}$ or ba , and a' the first six significant figures of b' (found in table 3) be an integer,

ger, and A' its logarithm; put δ for the remaining figures of b' ; x the complement of δ to d' ; D' , D'' , D''' , the 1st, 2d, 3d, differences of the logarithms in the same line with A' ; $f = \frac{1}{3} D''' \times x + 1 + D''$. Then B the logarithm of the number b will be

$$\left. \begin{array}{l} D' \times \delta + A' \pm A = B' \pm A \text{ to } 12 \\ \frac{1}{3} x D''' + D'' \times \delta + A' \pm A = B' \pm A \text{ to } 17 \\ \frac{1}{2} x f + D' \times \delta + A' \pm A = B' \pm A \text{ to } 20 \end{array} \right\} \begin{array}{l} \text{places of} \\ \text{figures nearly.} \end{array}$$

Ex. Given $b = 3.14159,26535,89793,23846,26434$, to find B to twenty places.

Here $a = 3.1415$.

Let $a = \frac{a}{n} = 3.11$.

Then $b' = \frac{b}{a} = 0.01010,15840,95144,02970,57$; $a' = 10.1015$.

$\delta = 0.84095,14402,97057$; $x = 0.15904,85597$; $x + 1 = 1.15905$;
 $D' = 42992,85574,06337$; $D'' = 42560,23099$; $D''' = 84263$.

Now $\frac{1}{3} D''' \times x + 1$

D'''	32555
$\frac{1}{3} D''' \times x + 1$	42560,23099
f	42560,55654
$\frac{1}{2} x f$	3384,59761
D'	42992,85574,06337
$\frac{1}{2} x f + D'$	42992,88958,66098
$\frac{1}{2} x f + D' \times \delta$	36154,93242,03919
A'	00438,58681,74054,30961
A	49276,03890,26837,50555
And B	0.49714,98726,94133,85435

Or, let $a = \frac{n}{a} = 3.216 = 0.536 \times 6$.

Then $b' = b a = 10.10336,19739,44775,0549$; $a' = 10.1033$.

$\delta = 0.61973,94477,50549$; $x = 0.38026,055225$; $x + 1 = 1.38026$;
 $D' = 42985,19618,80760$; $D'' = 42545,06747$; $D''' = 84219$.

Now $\frac{1}{3} D''' \times x + 1$

D'''	38748
$\frac{1}{3} D''' \times x + 1$	42545,06747
f	42545,45495
$\frac{1}{2} x f$	8089,17910
D'	42985,19618,80760
$\frac{1}{2} x f + D'$	42985,27707,98670
$\frac{1}{2} x f + D' \times \delta$	26639,67187,88811
A'	00446,32488,03359,61854
B'	1.00446,59127,70547,50665
A	0.50731,60400,76413,65230
$B = B' - A$	0.49714,98726,94133,85435

(II.) To find the Numbers to given Logarithms.

CASE I. When the logarithm B is found in any of these three tables: then its number b is in the line even with it.

CASE 2. If the first five figures (omitting the index) of a given logarithm B' , be between 00432 and 00492: take them as an integer, and put A' and C' for the logarithms, in table 3, next less and greater than B' , a' and c' their numbers; let $D' (= C' - A')$ and D'' be the 1st and 2d differences in the line with A' ; $\Delta = B' - A'$;

$$d' = (c' - a' =) 1; X = \frac{D' - \Delta}{D'}; \delta = \frac{\Delta}{D' + \frac{1}{2} X D''}; \text{ then } b' = a' + \delta,$$

δ , nearly true to 17 places of figures.

Ex. Given the logarithm $B' = 5,00446,59127,70547,507$
to find b' its number. $A' = 5,00446,32488,03359,619$

$$a' = 101033$$

$$\delta = 0.61973,944776$$

$$b' = 101033.61973,944776$$

$$\Delta = 0.26639,67187,888$$

$$D' = 0.42985,19618,808$$

$$D' - \Delta = 0.16345,52430,920$$

$$X = 0.38026$$

$$D'' = 0.00000,42545$$

$$\frac{1}{2} X D'' = 0.00000,08089,1$$

$$D' + \frac{1}{2} X D'' = 0.42985,27707,9$$

But when any other logarithm B is given, subduct 004321 from the first six figures of B ; call the remainder R , and let A be the logarithm in table 2, next less than R , or next greater than the complement of R , and a its number: then $B' = B - A$, or $B' = B + A$, will be within the limits of table 3, and b' will be found as in the preceding example; and if $B' = B - A$, then $b = ab'$; or if $B' = B + A$, then $b = \frac{b'}{a}$.

CASE 3. If A' , the first five figures (omitting the index) of a given logarithm B' , be found in table 4: let a' be its number; and put A' as an integer, and Δ the remaining figures of B' , and X the complement of Δ to D' ; d' , d'' , d''' , the 1st, 2d, 3d differences of the numbers in the same line with a' ; $f = d'' - \frac{1}{3} d''' \times \overline{X + 1}$: then the number b' , whose logarithm is B' , will be

$$\left. \begin{array}{l} d' \times \Delta + a' \text{ --- to 12 } \\ \frac{d' - \frac{1}{3} X d''}{d' - X f} \times \Delta + a' \text{ --- to 17 } \\ \text{--- to 20 } \end{array} \right\} \text{ places of figures nearly.}$$

Ex. Given the logarithm $B' = 0.00006,93311,37711,69929$, to find b' its number to 20 places. Here $A' = 00006$.

$$\Delta = 0.93311,37711,69929; X = 0.06688,622883; X + 1 = 1.066886;$$

$$d' = 23029,29742,21293; d'' = 53027,52746; d''' = 1,22100.$$

Now $\frac{1}{3} d''' \times \overline{X+1}$	-	-	-	-	43422
d''	-	-	-	-	53027,52746
f	-	-	-	-	53027,09324
$\frac{1}{2} X f$	-	-	-	-	1773,39115
d'	-	-	-	-	23029,29742,21293
$d' - \frac{1}{2} X f$	-	-	-	-	23029,27968,82178
$d' - \frac{1}{2} X f \times \Delta$	-	-	-	-	21488,93801,72000
a'	-	-	-	-	10001,38164,64943,57474
And b'	-	-	-	-	1'00015,96535,87452,9474

CASE 4. If the logarithm B come under none of the preceding cases. Put A for the logarithm in table 2, next less than B, or next greater than the complement of B, and a its number; let $B' = B - A$, or $B' = B + A$; and A' , the first five figures of B' , may be had in table 4, with a' its number; put A' as an integer, and let Δ be the remaining figures of B' ; X the complement of Δ to D' ; d' , d'' , d''' , the 1st, 2d, 3d differences of the numbers in the same line with a' ; $f = d'' - \frac{1}{3} d''' \times \overline{X+1}$: then the number b' , whose logarithm is B' , will be

$$\left. \begin{array}{l} \overline{d' \times \Delta + a'} \times a = ab' \text{ to 11} \\ \overline{d' - \frac{1}{2} X d'' \times \Delta + a'} \times a = ab' \text{ to 16} \\ \overline{d' - \frac{1}{2} X f \times \Delta + a'} \times a = ab' \text{ to 19} \end{array} \right\} \begin{array}{l} \text{places of figures} \\ \text{nearby.} \end{array}$$

Ex. Given $B = 4.46372,61172,07184,15204$, to find b its number,

Let $A = 1.46239,79978,98956,08733$. $a = 29$.

$B' = B - A = 5.00132,81193,08228,06471$. $A' = 00132$.

$\Delta = 0.81193,08228,06471$; $X = 0.18806,91772$; $X + 1 = 1.18807$;

$d' = 23096,20835,34589$; $d'' = 53181,59733$; $d''' = 1.22457$.

Now $\frac{1}{3} d''' \times \overline{X+1}$	-	-	-	-	48496
d''	-	-	-	-	53181,59733
f	-	-	-	-	53181,11237
$\frac{1}{2} X f$	-	-	-	-	5000,86402
d'	-	-	-	-	23096,20835,34589
$d' - \frac{1}{2} X f$	-	-	-	-	23096,15834,48187
$d' - \frac{1}{2} X f \times \Delta$	-	-	-	-	18752,48284,85771
a'	-	-	-	-	10030,44036,01963,96855
b'	-	-	-	-	10030,62788,50248,82626
$b = ab'$	-	-	-	-	0.00029,08882,08665,72159,6154

Or,

Or, given $B = 4.46372,61172,07184,15204$, to find b .
 Let $A = 2.53655,84425,71530,11205$. $a = 344$.
 $B' = B + A = 1.00028,45597,78714,26409$. $A' = .00028$.
 $\Delta = 0.45597,78714,26409$; $X = 0.54402,21286$; $X + 1 = 1.54402$;
 $d' = 23040,96629,91521$; $d'' = 53054,39634$; $d''' = 1.22163$.
 Now $\frac{1}{3} d''' \times \overline{X + 1}$ 62874
 d'' 53054,39634
 f 53053,76760
 $d' \quad \frac{1}{2} X f$ 14431,21179
 d' 23040,96629,91521
 $d' - \frac{1}{2} X f$ 23040,82198,70342
 $d' - \frac{1}{2} X f \times \Delta$ 10506,10496,55627
 a' 10006,44931,70511,67281
 b' 10006,55437,81008,22908
 $b = \frac{b'}{a}$ 0.00029,08882,08665,72159,616

OF THE TABLES FOR LOGARITHMS TO SIXTY-ONE PLACES.

These are tables 5 and 6, from page 204 to page 208; the former containing the natural numbers in regular order from 1 to 100, and after that all the primes up to 1100, with their corresponding logarithms to sixty-one places of figures; and the latter in page 208 contains all numbers in order from 999980 to 1000020, with their logarithms to sixty-one places, as also the 1st, 2d, 3d, and 4th differences of these logarithms. And the use of these tables, in finding the logarithm to any number, or the number to any logarithm, each to sixty-one places of figures, will be as follows.

1. Any Number being given, to find its Logarithm to 61 Places of Figures.

IF the given number be in either of the tables, its logarithm is found in the line even with it.

If the given number is the product or quotient of any two or more numbers found in the tables, the sum or difference of their logarithms is the logarithm of the given number.

If the given number is not in either table, or is not the product or quotient of any there, then divide 99999800000 by the first fix figures of the given number, the quotient, if composed by the multiplication, or division, or both, of any numbers in table 5, or the nearest number to the quotient so composed, will for the most part be a factor for multiplying the given number to make the first fix or seven figures of the product, with the residue as a decimal, near one of the numbers in table 6 whose logarithm is there given; and the logarithm of the fraction made by the product and that number (found by the series in page 105) added, if the product be the greater, or subtracted, if the less, will give the logarithm of the product; then subtracting the logarithm of the factor, the remainder is the logarithm of the given number: but if no such product can be had, then seek for some product composed of numbers in the tables, as shall have the first fix, seven, or more figures thereof, the same as those of the given number, or of some product of it made by one or more of the said numbers, whereby it's logarithm will be found as before.

Let the logarithm of (π) $3 \cdot 14159265358979323846264338327950288419716939937510582097494459230$ (the circumference of a circle whose diameter is 1, or the measure of the arc of 180 deg, when the radius is 1) be sought, and thereby the logarithm of (M) the measure of the arc of 1 minute.

99999800000 divided by 314159 squares 318310 nearly, which (being composed of 229×1390) is a fit multiplier for the number 3'14159 &c. whose product 100000035756,41670,8573504401,53316,98563,66880,99915,15089,93387,45346,13 &c suits very well, being nearest 100000 in table 6. But if no such product could have been found, or that it is known, the product of some others (as 313×271 divided by 27) will suit never, and shorten the operation, instead of the multiplier 318310, take 27, then the product is 84'82300, 16469,24417,43849,13713,48546,57787,33235,73783,12785,71663,23503,9921=6, and the first five figures 84823 (3'13X27'1) = a.

$$\text{Let } \frac{b-a}{b+a} = x$$

169.6400, 164.69, 244.75, 384.9, 13713, 48546, 57787, 33255, 73783, 12785, 71663, 25504

A c'c0000,0cc97,08006,09180,37307,16877,07959,99443,15465,88388,S21255,9471,23822

[illegible]

[illegible]

Year	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	

Normal bounds of

Natural logarithm of $\frac{b}{a}$	$\frac{b}{a}$
0.00000,00097,9856,99180,3,7,10,218,55,32802,79572,19877,25804,26330,73055,86639	1.00000,00097,9856,99180,3,7,10,218,55,32802,79572,19877,25804,26330,73055,86639

Briggs's logarithm of $\frac{b}{a}$ 0'00000,00084,32266 95'190,70452,98319,82138,06447,38.23,25534,00216,080009

Log. of 3'13 0'49554,43375,46448,48480,81265,04861,24315,15792,98693,98571,52993,196813

Log. of 27'1 1'43296,92908,74405,72952,11801,94875,18026,90280,28099,71147,47196,959683

Sum = log. of b 1'92851,36368,53121,16623,65519,98056,24480,12520,64916,95253,00406,236505

Log. of 27 subtract 1'43136,37641,58987,31188,50837,09765,34592,76003,86592,57208,75944,895969

Log. of (Π) 3'14159 &c 0'49714,98726,94133,85435,12682,88290,89887,36516,78324,38044,24461,340536

Log. of 10800 (= log. of 180 + log. of 60) subtract 4'03342,37554,86949,70231,25614 99214,33198,11367,66355,49630,46771,104518

Log. of (M) 0'00029,0882 &c 6'46372,61172,07184,15203,87067,89076,56689,25149,11968,88413,77690,236018

Note, The index of this last logarithm being — 4, its complement (6) is put down, that it may be like those of the log. fines, tangents, &c.

2. *Any Logarithm being given, to find its corresponding Number to 61 Places of Figures.*

If the given logarithm is in either of the tables, its number is found in the same line prefixed.

If the given logarithm is not in the tables, then find the first seven or eight figures of the number by any other table of logarithms; and if fix or all of them be the component of numbers in these tables, it will suit very well; but if not, the nearest number thereto, either greater or less, composed of these numbers will do; for the logarithm of such component is had in these tables; then the number answering to the difference of the two logarithms (found by Dr. Halley's rule in page 106, for finding the number from the log. given) multiplied by that component, gives the number sought.

Let the example be to find the number represented by $\overline{1'06}^{\frac{1}{365}}$, or the amount of one pound for one day, at the rate of 6l. per cent. per ann. compound interest.

The log. of 1'06 (= log. of 0'53 + log. of 2) 0'02530,58652,64770,24084,67311,86351,74961,94636,92282,75704,63219,045305

$\frac{1}{365}$ of log. of 1'06 = L 0'00006,93311,37711,69928,99910,44346,16917,70396,26554,19933,43734,846699

To which the nearest number of six figures (found in the first or general table) answering, though greater, composed of numbers in table 5, is 1'00016 (= 7'6 × 0'47 × 0'28) = b .

Log. of b (= log. of 7'6 + log. of 0'47 + log. of 0'28) = 0'00006,94815,58728,03751,77247,12696,73825,86672,64357,99684,49976,894931

From which subtract L 0'00006,93311,37711,69928,99910,44346,16917,70396,26554,19933,43734,846699

There will remain l 0'00000,01504,21016,33822,77336,68350,56908,16276,37803,79751,06242,048232

This multiplied by m = 2'30258 &c, produces $m l$ = 0'00000,03463 &c = A .

A	0'00000,03463,57189,89341,69713,22305,54835,82225,32861,41751,01028,013306
A ²	119,96330,29908,64503,38236,86101,03636,37764,19566,537177
A ³	4,15501,52514,24837,28993,16427,39396,16938,866927
A ⁴	14391,19406,44779,60302,49067,81615,535389
A ⁵	498,44935,35383,40809,76217,006709
A ⁶	17,26415,17395,73003,838899
A ⁷	59795,63082,412052
A ⁸	2071,064666
$1 + \frac{1}{2}A^2$	1'00000,00000,00059,98165,14954,32251,69118,43050,51818,18882,09783,268588
$\frac{1}{24}A^4$	599,63308,60199,15012,60377,82567,313975
$\frac{1}{720}A^6$	2397,79885,27184,727554
$\frac{1}{40320}A^8$	51366
Sum of the affirmative parts	1'00000,00000,00059,98165,14954,32851,32427,03249,69228,59145,19535,361483
A	0'00000,03463,57189,89341,69713,22305,54835,82225,32861,41751,01028,013306
$\frac{2}{6}A^3$	69250,25419,04139,54832,19404,56566,02823,144488
$\frac{1}{720}A^5$	4,15374,46128,19506,74801,808389
$\frac{1}{30480}A^7$	11,86421,246511
Sum of the negative parts	0'00000,03463,57189,89342,38963,47724,58979,52431,98394,17835,65074,212694
Result of the series	0'99999,96536,42870,08822,75990,85126,73447,50817,70834,41399,54461,148789

Which multiplied by 1'00016 gives $(1'06)^{\frac{1}{365}}$, or the amount of one pound for one day at the rate of 5*l.* per cent. per ann. compound interest.

The log. of 1'05 (= log. of 0'21 + log. of 5) = 0'02118,92990,69938 &c; and $\frac{1}{365}$ thereof is 0'00005,80528,74164 &c = L, to which the nearest number of eight figures answering, but less, composed of numbers in table 5, is 1'0001334 (= 1'51 × 0'83 × 0'42 × 1'9) = a; this will converge swifter than the preceding. Such expedients may be found for most numbers that can be proposed.

Note, Of any number produced between the numbers in table 6, the logarithm may be most easily had to 30 places, by the several differences annexed. Of

OF THE TABLE OF HYPERBOLIC LOGARITHMS.

This is table 7, in pages 209 - - - 212, which contain the series of numbers 1.01, 1.02, 1.03, &c to 10.00, with their hyperbolic logarithms to seven places of figures. They are so called because they square the asymptotic spaces of the right-angled hyperbola; and they are very useful in finding fluents, and the sums of infinite series. The table, as well as the following rules, were first given at the end of Simpson's fluxions; but they were rendered much more correct in the French edition of Gardiner's tables, printed at Avignon in 1770, being very incorrect in the last figure in Simpson's book. But both those books are very erroneous in the example for finding logarithms by the table.

1. *When the given Number is between 1 and 10.*

From the given number subtract the next less tabular number, divide the remainder by the said tabular number increased by half the remainder; add the quotient to the logarithm of the said tabular number, and the sum will be the logarithm of the number proposed.

Ex. To find the hyperbolic logarithm of 3.45678. Here the next less number is 3.45, and its logarithm 1.2383742, the remainder or dividend .00678, its half 339, which joined to the tabular number 3.45 gives the divisor: the quotient .0019633 added to the tabular logarithm 1.2383742, gives 1.2403375 the required logarithm of 3.45678.

$$\begin{array}{r} 3.45339) .00678 (.0019633 \\ \underline{1.2383742} \\ \text{log. } 1.2403375 \end{array}$$

2. *When the given Number exceeds 10.*

Find the logarithm of the number as above, supposing all the figures after the first to be decimals; then to that logarithm add 2.3025851, or 4.6051702, or 6.9077553, &c, according as the given number contains 2, or 3, or 4, &c, places of integers. That is, add 2.302585092994 multiplied by the index of the power of 10, by which the given number was divided to bring it to one integer, or within the limits of the table.

Ex. To find the hyperbolic logarithm of 345.678. This number divided by 100 or 10^2 , to bring it within the limits of the table, or removing the decimal point two places, gives 3.45678, the logarithm of which as above found is 1.2403375, to which adding 4.6051702 the hyperbolic logarithm of 100, the sum is 5.8455077 the hyperbolic logarithm required of 345.678,

$$\begin{array}{r} 1.2403375 \\ 4.6051702 \\ \hline 5.8455077 \end{array}$$

Note,

Note, The hyperbolic logarithm of any number may be also found from Briggs's logarithms, viz. multiplying Briggs's logarithm of the same number by the hyperbolic logarithm of 10, viz.

Multiplying by - - 2.30258,50929,94045,68401,79914,
Or dividing by its reciprocal 43429,44819,03251,82765,11289.

OF THE LOGISTIC LOGARITHMS.

These are in table 8 pages 213 - - - 217, which contain the logistic logarithm of every second as far as the first 80' or 4800".

The logistic logarithm of any number of seconds, is the difference between the logarithm of 3600" and the logarithm of that number of seconds.

The chief use of the table of logistic logarithms, is for the ready computing a proportional part in minutes and seconds, when two terms of the proportion are minutes and seconds, hours and minutes, or other numbers.

When two terms of the proportion are common numbers, their common logarithms may be used instead of their logistic logarithms, putting the logarithm where its complement should be, and the contrary.

1. *To find the Logistic Logarithm of any Number of Minutes and Seconds, within the Limits of the Table.*

At the top of the table find the minutes, and in the same column, even with the seconds on the left-hand side, is the logistic logarithm.

Note, When hours are made any terms of the proportion, they are to be taken as if they were minutes, and the minutes of an hour as if they were seconds.

2. *To find the Logistic Logarithm of any Number not exceeding 4800.*

In the 2d row next the top of the table find the number next less than that given, and in the same column, even with the difference on the left-hand side, is found the logistic logarithm.

When two given terms of the proportion are common numbers, one or both greater than 4800, take their halves, thirds, &c, instead of them. But when only one of the given terms is a common number, and that greater than 4800, take its half, third, &c, and multiply the 4th term by 2, 3, &c.

The logistic logarithms in this table are all affirmative, as well above as below 60'; but the index of those above 60' is — 1; below 60' down to 6', the index is 0; and below 6', the indices (being either 1, 2, or 3) are expressed in the table.

EXAMPLES,

E X A M P L E S.

As 60'	lo. log.	As 60'	lo. log.	As 60'	lo. log.
To 46' 12"	. 0.1135	To 78' 27"	. 1.8836	To 153'	. 0.3713
So 8 7	. 0.8688	So 13 53	. 0.6357	So 40' 12"	. 0.1135
To 6 15	. 0.9823	To 18 9	. 0.5193	To 1179	. 0.4848
As 46' 12"	. co. 1.8865	As 78' 27"	. co. 0.1164	As 40' 12"	. co. 1.8865
To 60 0	. 0.0000	To 60 0	. 0.0000	To 1179	. 0.4848
So 6 15	. 0.9823	So 18 9	. 0.5193	So 60 0"	. 0.0000
To 8 7	. 0.8688	To 13 53	. 0.6357	To 153'	. 0.3713
As 60'	. co. 0.0000	As 24 ^h	. co. 1.6021	As 24 ^h	. co. 1.6021
To 4721	. 1.8823	To 46' 11"	. 0.1137	To 76' 34"	. 1.8941
So 37' 28"	. 0.2045	So 8 ^h 7'	. 0.8688	So 13 ^h 53'	. 0.6357
To 2948	. 0.0868	To 15' 37"	. 0.5846	To 44' 17"	. 0.1319
As 4721	. co. 0.1177	As 46' 11"	. co. 1.8863	As 76' 34"	. co. 0.1059
To 60 0"	. 0.0000	To 24 ^h	. 0.3979	To 24 ^h	. 0.3979
So 2948	. 0.0868	So 15' 37"	. 0.5846	So 44' 17"	. 0.1319
To 37' 28"	. 0.2045	To 8 ^h 7'	. 0.8688	To 13 ^h 53'	. 0.6357

The logistic logarithms may conveniently be used in trigonometrical operations, when two of the terms are small arcs, with the logarithmic fines or tangents of other arcs: observing, that instead of the logarithmic fine or tangent, to take the complement of their logistic logarithm; and the contrary.

But this may be as readily and more naturally done by the logarithmic fines and tangents themselves of such small arcs, as taken from the next following table of fines and tangents for every second of the first 2° or 120'.

OF THE LOGARITHMIC SINES AND TANGENTS TO EVERY SECOND.

Table 9, pages 218 - - - 247, contains the log. fines and tangents for every single second of the first 2 degrees of the quadrant; the fines being placed on the left-hand pages, and tangents on the right. The degrees and minutes are placed at the top of the columns, and the seconds on the left-hand side, of each page, the logarithmic fine or tangent being found in the common angle of meeting. So of 1° 52' 54" the log. fine is 8.5163420, and the log. tangent 8.5165762.

The same numbers are also the cofines and cotangents of the last 2 degrees of the quadrant, those degrees with their minutes being placed at the bottom of the columns, and their seconds ascending

on the right-hand side of the pages. So the cosine of $88^{\circ} 7' 6''$ is 8.5163420, and its cotangent 8.5165762.

When it is required to find the sine or tangent &c. to 3ds &c. or any other fractional part of a second, subtract the tabular sine or tangent of the compleat seconds from the next to it in the table, and take the like proportional part of the difference; which part added to, or taken from, the said tabular sine or tangent, according as it is increasing or decreasing, will give the sine or tangent required.

Ex. To find the log. sine of $1^{\circ} 52' 54'' 25'''$ or $1^{\circ} 52' 54'' \frac{25}{60}$ or $\frac{5}{12}$.
 Here the sine of $1^{\circ} 52' 54''$ taken from the next leaves 641, which multiplied by 5 and divided by 12, or multiplied by 25 and divided by 60, gives 267 the pro. part; this added to the first sine gives that which was required.

$1^{\circ} 52' 54''$ line	8.5163420
$1^{\circ} 52' 55''$	8.5164061
	diff. 641
	<u>5</u>
	12)3205
	pro. part 267
$1^{\circ} 52' 54''$	8.5163420
$1^{\circ} 52' 54'' 25'''$	8.5163687

On the contrary, if a sine or tangent be given, to find the corresponding arc; take the difference between it and the next less tabular number, and the difference between the next less and greater tabular numbers, so shall the less difference be the numerator, and the greater the denominator, of the fractional part to be added to the arc of the less tabular number; which fraction may also, if required, be either turned into a decimal, or into 3ds &c. by multiplying the numerator by 60 and dividing by the denominator.

Ex. To find the arc whose sine is 8.5163900.

Finding the number is between the sines of $1^{\circ} 52' 55''$ and $1^{\circ} 52' 54''$, take the differences between the sines as in the margin, and the differences give $\frac{480}{641}$ for the fraction of a second, or $\frac{48}{64}$ nearly, which abbreviates to $\frac{3}{4} = 45'''$; and therefore the arc sought is $1^{\circ} 52' 54'' 45'''$.

$1^{\circ} 52' 55''$	8.5164061
$1^{\circ} 52' 54''$	8.5163420
$1^{\circ} 52' 54' 45'''$	8.5163900
	diff. - - 480
	diff. - - 641

Where the 1st differences of the sines and tangents alter much, as near the beginning of the table, the 2d, 3d, &c. differences may be taken in, and then the logarithmic sine or tangent will be expressed by this series, viz.

$$Q = A + xD' + x \cdot \frac{x-1}{2} D'' + x \cdot \frac{x-1}{2} \cdot \frac{x-2}{3} D''' \text{ \&c. or nearly } A + \overline{D' - \frac{1}{2} D''} \cdot x;$$

where A is the next less tabular logarithm, D', D'', D''', &c. the 1st, 2d, 3d, &c. differences of the tabular logarithms, and x the fractional part of the arc over the compleat seconds.

Ex.

Ex. To find the log. tangent of $5^{\circ} 1' 12'' 24'''$ or $5^{\circ} 1' \frac{62}{3000}$ or $5^{\circ} 1' .206$.
 Here $A = 7.1641417$; $x = \frac{62}{3000}$; $D' = 14404$; and the mean 2d diff. $D'' = -48$. Hence

Tang.	D'	D''
$5^{\circ} 0'' - - 7.1626964$	14453	
$5^{\circ} 1 - - 7.1641417$	14404	-49
$5^{\circ} 2 - - 7.1655821$	14357	-47
$5^{\circ} 3 - - 7.1670178$		

$A - - 7.1641417$
 $x D' - - - 2977$
 $x. \frac{x-1}{2} D'' - - - 4$

Therefore the tangent of $5^{\circ} 1' 12'' 24''' - - - 7.1644398$
 And on the other hand, when the sine or tangent is given, and falls near the beginning of the table, from the same series we may find x the fractional part of a second. For suppose it be required to find the arc whose tangent is 7.1644398 . This falling between the tangents of $5^{\circ} 1'$ and $5^{\circ} 2'$, take the differences &c. as above, and the series gives $7.1644398 = 7.1641417 + x D' + x. \frac{x-1}{2} D''$,
 or $2981 = 14404 x - 24. x^2 - x$, or $-24 x^2 + 14428 x = 2981$;
 which gives $x = .2067''$ nearly $= 12''' 24'''$. Therefore the arc required is $5^{\circ} 1' 12'' 24'''$. Or rather the approximate value $A + D' - \frac{1}{2} D'' . x = Q$, gives $x = \frac{Q - A}{D' - \frac{1}{2} D''} = \frac{2981}{14404 + 24} = \frac{2981}{14424} = .2067$, the same as before.

OF THE TABLE OF NATURAL AND LOGARITHMIC SINES, TANGENTS, &c.

Table 10, page 248 - - - 337, contains all the sines, tangents, secants, and versed sines, both natural and logarithmic, to every minute of the quadrant, the degrees at top, and minutes descending down the left-hand side as far as 45° , or the middle of the quadrant, and from thence returning with the degrees at the bottom, and the minutes ascending by the right-hand side to 90° , or the other half of the quadrant, in such sort that any arc on the one side is on the same line with its complement on the other side; the respective sines, cosines, tangents, cotangents, &c. being on the same line with the minutes, and in the columns signed with their respective names, at top when the degrees are at top, but at the bottom when the degrees are at the bottom. The natural sines, tangents, &c. are placed all together on the left-hand pages, and the logarithmic ones all together, facing them, on the right-hand pages. Also in the naturals there are two columns of common differences, and in the logarithmic 3 columns of common differences, each column of differences being placed between the two columns of numbers having the same differences; so that these differences serve for both their right-hand and left-hand adjacent columns: also each differential number is set opposite the space between the numbers whose difference it is. The numbers on the same line in those columns having such common differences, are mutually complements

U 2

of

of each other; so that the sum of the decimal figures of any two such numbers, is always 1 integer, with 0 in each place of decimals.

All this will be evident by inspecting one page of each sort, as well as the method of taking out the sine, &c. to any degrees and compleat minutes. It is however to be observed, that in all the log. sines, tangents, &c. and in such of the natural as have any significant figure for their index or characteristic, the indices are expressed in the table, and the separating point is placed between the index and the decimal part of the number; but in several columns of the natural sines, &c. having 0 for their integer or index, both the index and decimal separating point are omitted: and wherever this is the case, it is to be understood that all the figures in such columns are decimals, wanting before them only the separating point and index 0.

The sine, tangent, or secant of any arc, has the same value, or is expressed by the same number, as the sine, tangent, or secant of the supplement of that arc; for which reason the tables are carried only to a quadrant or 90 degrees. So that when an arc is greater than 90°, subtract it from 180°, and take the sine, tang. or secant of the remainder, for that of the arc given. But this property does not take place between the versed sines of arcs and their supplements: and to find the versed sine of an arc greater than 90°, proceed thus: in the natural versed sines, to radius add the natural cosine, the sum will be the natural versed sine; and in the log. versed sines, add 0.3010300 to twice the log. sine of half the arc, the sum, abating radius 10.0000000, will be the log. versed sine required.

1. *Given any Arc; to find its Sine, Cosine, Tangent, &c.*

Seek the degrees at the top or bottom, and the minutes respectively on the left or right, and on the same line with these is the sine, &c. each in its proper column, the title being at the top or bottom, according as the degrees are.

But when the given arc contains any parts of a minute, intermediate to those found in the table: take the difference between the tabular sines, &c. of the given degrees and minutes, and of the minute next greater; then take the proportional part of that difference for the parts of the minute, and add it to the sine, tangent, secant, and versed sine, or subtract it from the cosine, cotangent, cosecant, or covered sine, of the given degrees and minutes; so shall the sum or remainder be the sine, &c. required.

Note, The proportional part is found thus, as 1' is to the given intermediate part of a minute, so is the whole difference, to the proportional part required; which therefore is found by multiplying the difference by the said intermediate part. Also that intermediate part may be expressed either by a vulgar fraction, or decimal, or a sexagesimal in seconds, thirds, &c. and the fraction or sexagesimal may

may be first reduced to a decimal, if it be thought better so to do, by dividing the numerator of the fraction by the denominator, or by dividing the sexagesimal by 60.

E X A M P L E S.

1. To find the natural sine of $1^{\circ} 48' 28'' 12'''$.
In the column of difference between the natural sines of $1^{\circ} 48'$ and $1^{\circ} 49'$ is the difference 2907; and $28'' 12'''$ being $= 28.2'' = .47'$; therefore as $1 : 2907 :: .47' : \text{the pro. part} + 1366$ to which add sin. $1^{\circ} 48' - 0314108$ makes sin. of $1^{\circ} 48' 28'' 12''' 0315474$
2. To find the natural tangent of $8^{\circ} 9' 10'' 24'''$.
 $8^{\circ} 10'$ tang. - - - 1435084
8 9 - - - 1432115
diff. 2969
 $1 : 2969 :: (10'' 24''' =) .17' \frac{1}{3} : + 515$
 $8^{\circ} 9' - - - 1432115$
 $8^{\circ} 9' 10'' 24''' - 1432630$
3. To find the nat. covered sine of $4^{\circ} 6' 5'' 40'''$.
 $1 : 2902 \text{ (tab. dif.)} :: \frac{17'}{180} = \left. \begin{array}{l} 5'' 40''' : \text{pro. part} - - \\ 4^{\circ} 6' \text{ coverf.} - - \end{array} \right\} - 274$
 $4^{\circ} 6' 5'' 40''' - 9285026$
 $4^{\circ} 6' 5'' 40''' - 9284752$
4. To find the logarithmic cosine of $6^{\circ} 8' 42''$.
 $1 : 136 \text{ (tab. dif.)} :: .7' = 42'' : \text{pr. pt.} - 95$
 $6^{\circ} 8' \text{ cosine} - - 9.9975069$
 $6^{\circ} 8' 42'' - - 9.9974974$
5. To find the log. sec. of $7^{\circ} 12' 50''$.
 $1 : 160 \text{ tab. dif.} :: \frac{5'}{6} = 50'' : \text{pr. pt.} + 133$
 $7^{\circ} 12' \text{ secant} - 10.0034381$
 $7^{\circ} 12' 50'' - 10.0034514$
6. To find the logarithm cotangent of $39^{\circ} 4' 12'' 20'''$.
 $1 : 2581 \text{ tab. dif.} :: .20' = \left. \begin{array}{l} 12'' 20''' : \text{pro. part} \} - 531 \\ 39^{\circ} 4' \text{ cotan.} - 10.0905978 \end{array} \right\}$
 $39^{\circ} 4' 12'' 20''' 10.0905447$

The foregoing method of finding the proportional part of the tabular difference, to be added or subtracted, by one single proportion, is only true when those differences are nearly equal, and may do for all except for the tangents and secants of great arcs near the end of the quadrant in the natural sines, &c. and in the log. sines, &c. except the sines and versed sines of small arcs, the tangents of both large and small arcs, and the secants of large arcs. And when much accuracy is required, these excepted parts may be found by the series used in the last article, viz. $Q = A + x D' +$

$$x. \frac{x-1}{2} D'' + x. \frac{x-1}{2} \cdot \frac{x-2}{3} D''' \&c. \text{ or } = A + \overline{D' - \frac{1}{2} D''} x \text{ near-}$$

ly; where A is the tabular number for the degrees and minutes, D' , D'' , D''' , &c. the 1st, 2d, 3d, &c. tabular differences, and x the fractional part over the compleat minutes, &c; at least it may be proper to find the tang. and secants of very large arcs from this series; but as to the log. sines, versed sines, and tangents of small arcs, they may also be found, perhaps easier, from their corresponding natural ones, viz. find the natural sine, versed sine, or tangent of
the

the given small arc, and then find the log. of such natural number by the 1st or large table of logarithms, which will be the log. fine, &c. required. And the log. tangent and secant of large arcs will be also found by taking the difference between 20 and their log. cotangent and cofine respectively. And lastly, the natural tangents and secants of large arcs may also be found by first finding their log. tangent and secant, and then finding the corresponding number.

E X A M P L E S.

1. To find the log. fine of $1^{\circ} 48' 28'' 12'''$.
The natural fine, found in Ex. 1. above, is 0.0315474 ; and the log. of this is 8.4989636 the log. fine required.
2. To find the log. vers. of $1^{\circ} 48' 28'' 12'''$.
 $1^{\circ} 48'$ nat. vers. 0.004934
 $1 : 92 \text{ tab. dif.} :: .47' = 28'' 12''' : + 43$
 $1^{\circ} 48' 28'' 12''' \text{ nat. vers. } 0.004977$
 Its log. $1 \ 48 \ 28 \ 12 \text{ log. vers. } 6.6969676$
3. To find the log. tang. of $2^{\circ} 23' 33'' 36'''$.
 $2^{\circ} 23'$ its nat. tan. 0.416210
 $1 : 2914 \text{ tab. dif.} :: .56' = 33'' 36''' : + 1632$
 $2^{\circ} 23' 33'' 36''' \text{ nat. tan. } 0.417842$
 Its log. $2 \ 23 \ 33 \ 36 \text{ log. tan. } 8.6210121$
4. To find the log. tang. of $87^{\circ} 36' 26'' 24'''$.
 Its complement is $2 \ 23 \ 33 \ 36$
 Whose log. tang. in Ex. 3. is 8.6210121
 Taken from 20.0000000
 Leaves log. tan. $87^{\circ} 36' 26'' 24''' 11.3789879$
5. To find the log. sec. of $88^{\circ} 11' 31'' 48'''$.
 Its complement is $1 \ 48 \ 28 \ 12$
 Its log. fine in Ex. 1. is 8.4989636
 Which taken from 20.0000000
 Leaves l. sec. $88^{\circ} 11' 31'' 48''' 11.5010364$
6. To find the nat. sec. of $88^{\circ} 11' 31'' 48'''$.

	nat. sec.	D'	D''	D'''
$88^{\circ} \ 9'$	30.976074	281503	5166	
$88 \ 10$	31.257577	286669	5310	144
$88 \ 11$	31.544246	291979	5459	149
$88 \ 12$	31.836225	297438		
$88 \ 13$	32.133663			

Hence $A = 31.544246$; $D' = 291979$;
 $D'' = 5310$; the mean $D''' = 146$;

$$x = .53' = 31'' 48''' ; x \cdot \frac{x-1}{2} = -.12455 ;$$

$$x \cdot \frac{x-1}{2} \cdot \frac{x-2}{3} = .06125.$$

Then $A \quad - \quad - \quad - \quad - \quad - \quad 31.544246$
 $x D' \quad - \quad - \quad - \quad - \quad - \quad 154748$
 $x \cdot \frac{x-1}{2} D'' \quad - \quad - \quad - \quad - \quad - \quad -664$
 $x \cdot \frac{x-1}{2} \cdot \frac{x-2}{3} D''' \quad - \quad - \quad - \quad - \quad - \quad 9$
 $\hline 31.698339$

In the 6th example the natural secant is found by the differential series to be 31.698339 . But by taking the number to the logarithm of it, as found in the 5th example, it is 31.698333 ; which seems to be the more accurate, as well as the easier way; and indeed this method by the series, seems to be, in some instances, more troublesome, and less accurate, than finding the secant by dividing 1 by the cofine.

2. Given any Sine, Tangent, &c. to find its Arc.

Take the difference between the next less and greater tabular numbers of the same kind, and the difference between the given number and the said next less or next greater tabular number, according as the given number is a sine, tangent, &c. or a cosine, cotangent, &c. noting its degrees and minutes; then the two differences will be the terms of a vulgar fraction of a minute, to be added to those minutes, to give the arc required.

And this vulgar fraction may also, if required, be reduced to a decimal by dividing the less or numerator by the denominator, or brought to sexagesimals, by multiplying by 60, &c. Also where the tabular differences are printed, the subtraction of the less tabular number from the greater is saved.

E X A M P L E S.

1. To find the arc to the natural sine

$$\begin{array}{r}
 \text{Anf. } 1^\circ 3' 28'' 12''' \quad \begin{array}{l} .0315474 \\ 0315474 \end{array} \\
 \text{Subtr. } 148, \text{ next less} \quad \begin{array}{l} 0314108 \\ \hline 1366 \\ 60 \end{array} \\
 \text{Tab. diff.} \quad - \quad 2907 \quad \begin{array}{l} 81960(28'' \\ 5814 \\ 23820 \\ 23256 \\ 564 \\ 60 \end{array} \\
 2907 \quad 33840(12'''
 \end{array}$$

2. To find the arc to natural tang.

$$\begin{array}{r}
 \text{Next greater} \quad \begin{array}{l} .1432630 \\ 1435084 \end{array} \\
 \text{Anf. } 8^\circ 9' 10'' 24''' \quad 1432630 \\
 \text{Next less, subt. fr. each} \quad \begin{array}{l} 1432115 \\ \hline 515 \\ 60 \end{array} \\
 \text{Tab. difference } 2969 \quad \begin{array}{l} 30900(10'' \\ 29690 \\ 1210 \\ 60 \\ 72600(24''' \\ 5938 \\ 13220 \end{array}
 \end{array}$$

3. To find the arc to logarithm cosine

$$\begin{array}{r}
 \text{Answer } 6^\circ 8' 42'' \quad \begin{array}{l} 9.9974974 \\ 9.9975069 \\ 9.9974974 \end{array} \\
 \text{Tab. difference } 136 \quad \begin{array}{l} 95 \\ 60 \\ 5700(42'' \\ 544 \\ 260 \end{array}
 \end{array}$$

4. To find the arc to logarithm cot.

$$\begin{array}{r}
 \text{Anf. } 39^\circ 4' 12'' 20''' \quad \begin{array}{l} 10.0905447 \\ 10.0905978 \\ 10.0905447 \end{array} \\
 \text{Tab. difference } 2581 \quad \begin{array}{l} 531 \\ 60 \\ 31860(12'' \\ 2581 \\ 6050 \\ 5162 \\ 888 \\ 60 \\ 53280(20''' \\ 5162 \\ 1660 \end{array}
 \end{array}$$

The above method of proportioning by the first difference alone, can only be true when the other differences are nothing, or very small; but other means must be used when they are large, viz. for the natural tangents and secants of very large arcs; and for the logarithmic sines, and versed sines of small arcs, also the log. secants of large arcs, with the log. tangents and cotangents both of small and large arcs. When the log. sine, versed sine, or tangent of a small arc is given, by means of the table of logarithms find the corresponding natural number, and then the arc answering to it in the table of natural sines, &c. But when the log. tangent or secant of a large arc is proposed, subtract it from 20, the remainder is the log. cotangent or cosine, which will be the log. tangent or sine of a small arc which is the complement of that required, which complement will be found as in the last remark, by taking the corresponding natural number, and finding it in the natural tangents or sines; then subtracting that complemental arc from 90° , leaves the required large arc answering to the proposed log. tangent or secant. And when the natural tangent or secant of a large arc is proposed, change it into the log. tangent or secant of the same, by taking the log. of the proposed natural number; then proceed with it as above in the last remark.

E X A M P L E S.

1. To find the arc to natural tangent

50.0000000.

20.00000000

Given 50.0000000 its log. 11.6989700

.02 - - - - 8.3010300

.0197830 nat tan. of $1^\circ 8'$

$$\begin{array}{r}
 2470 \\
 60 \\
 \hline
 2910 \overline{)130200(44''} \\
 \underline{1164} \\
 1380 \\
 \underline{1164} \\
 216 \\
 60 \\
 \hline
 12960(44''' \\
 \underline{1164} \\
 1320
 \end{array}$$

Hence from - - $90^\circ 0' 0'' 0'''$

Take the comp. - 1 8 44 44

Leaves arc required 88 51 15 16

2. To find the arc to natural secant

31.6983333.

20.00000000

Given 31.69833 its log. 11.5010365

.0315474 - - 8.4989635

.0314108 nat. sine of $1^\circ 48'$

$$\begin{array}{r}
 1366 \\
 60 \\
 \hline
 2907 \overline{)81960(28''} \\
 \underline{5814} \\
 23820 \\
 \underline{23256} \\
 564 \\
 60 \\
 \hline
 33840(12''' \\
 \underline{2907} \\
 4770
 \end{array}$$

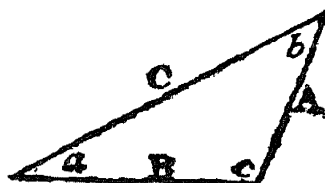
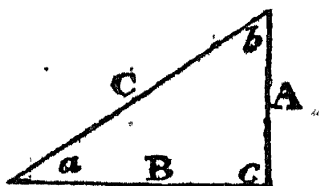
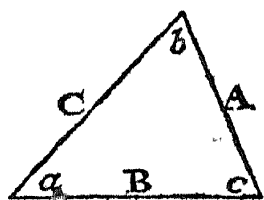
Hence from - - $90^\circ 0' 0'' 0'''$

Take the comp. - 1 48 28 12

Leaves arc required 88 11 31 48

TRIGONOMETRICAL RULES.

I. IN a right-lined triangle, whose sides are A, B, c , and their opposite angles a, b, c ; having given any three of these, of which one is a side; to find the rest.



Put s for the sine, s' the cosine, t the tangent, and t' the cotangent of an arc or angle, to the radius r ; also L for a logarithm, and L' its arithmetical complement. Then

Case 1. When three sides A, B, c , are given.

Put $P = \frac{1}{2} \cdot \overline{A + B + c}$ or semiperimeter.

Then $s. \frac{1}{2}c = r \sqrt{\frac{P-A \times P-B}{A \times B}}$.

And $s'. \frac{1}{2}c = r \sqrt{\frac{P \times P-C}{A \times B}}$.

$L. s. \frac{1}{2}c = \frac{1}{2} (L. P-A + L. P-B + L'A + L'B)$.

$L' s. \frac{1}{2}c = \frac{1}{2} (L. P + L. P-C + L'A + L'B)$.

Note, When $A = B$, then

$s. \frac{1}{2}c = \frac{C}{A} \times \frac{r}{2}$. And $s'. \frac{1}{2}c = r \sqrt{\frac{A^2 - \frac{1}{4}C^2}{A^2}}$.

Case 2. Given two sides A, B , and their included angle c .

Put $s = 90^\circ - \frac{1}{2}c$, and $t. d = \frac{A-B}{A+B} \times t. s$;

then $a = s + d$; and $b = s - d$. And

$c = \sqrt{\frac{4AB}{rr} \cdot s'^2 + (A-B)^2}$.

Or in logarithms, putting $L. Q =$

$2L. A-B$, and $L. R = L. 2A + L. 2B$

$+ 2L. s. \frac{1}{2}c - 20$,

we shall have $L. C = \frac{1}{2} L. Q + R$.

If the angle c be right, or $= 90^\circ$;

then $t. a = \frac{A}{B} r$; $t. b = \frac{B}{A} r$;

$c = \frac{r}{s. a} A$, or $= \frac{r}{s. b} B$, or $= \sqrt{A^2 + B^2}$.

If $A = B$; we shall have } $c = \frac{s. \frac{1}{2}c}{r} \times 2A$.
 $a = b = 90^\circ - \frac{1}{2}c$, and

Case 3. When a side and its opposite angle are among the terms given.

Then $\frac{A}{s. a} = \frac{B}{s. b} = \frac{C}{s. c}$; from which

equations any term wanted may be found.

When an angle, as a , is 90° , and A and c are given, then

$B = \sqrt{A^2 - c^2} = \sqrt{A + c \times A - c}$.

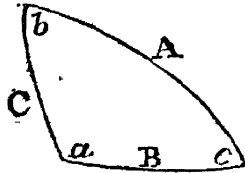
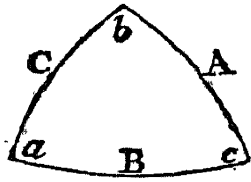
And $L. B = \frac{1}{2} (L. A + c + L. A - c)$.

Note, When two sides A, B , and an angle a opposite to one of them, are given; if A be less than B , then b, c , have each two values; otherwise, only one value.

X

II. In

II. In a spheric triangle, whose three sides are A, B, C , and their opposite angles a, b, c ; any three of these six terms being given, to find the rest.



Case 1. Given the three sides A, B, C .

Calling $2P$ the perim. or $P = \frac{1}{2} \cdot A + B + C$.

$$\text{Then } s \cdot \frac{1}{2}C = r \sqrt{\frac{s \cdot P - A \times s \cdot P - B}{s \cdot A \times s \cdot B}}.$$

$$\text{And } s' \cdot \frac{1}{2}C = r \sqrt{\frac{s \cdot P \times s \cdot P - C}{s \cdot A \times s \cdot B}}.$$

$$L. s \cdot \frac{1}{2}C = \frac{1}{2}(L. s \cdot P - A + L. s \cdot P - B + L. s \cdot A + L. s \cdot B).$$

$$L. s' \cdot \frac{1}{2}C = \frac{1}{2}(L. s \cdot P + L. s \cdot P - C + L. s \cdot A + L. s \cdot B).$$

And the same for the other angles.

Case 2. Given the three angles.

Put $2p = a + b + c$. Then

$$s \cdot \frac{1}{2}C = r \sqrt{\frac{s' \cdot p \times s' \cdot p - c}{s \cdot a \times s \cdot b}}. \text{ And}$$

$$s' \cdot \frac{1}{2}C = r \sqrt{\frac{s' \cdot p - a \times s' \cdot p - b}{s \cdot a \times s \cdot b}}.$$

$$L. s \cdot \frac{1}{2}C = \frac{1}{2}(L. s' \cdot p + L. s' \cdot p - c + L. s \cdot a + L. s \cdot b).$$

$$L. s' \cdot \frac{1}{2}C = \frac{1}{2}(L. s' \cdot p - a + L. s' \cdot p - b + L. s \cdot a + L. s \cdot b).$$

And the same for the other sides.

Note. The sign $<$ signifies greater than, and $>$ less; also \cap the difference.

Case 3. Given A, B , and included angle c .

To find an angle a opposite the side A , let $r : s'c :: t. A : t. M$, like or unlike A , as c is $<$ or $> 90^\circ$; also $N = B \cap M$:

then $s. N : s. M :: t. c : t. a$, like or unlike c as M is $<$ or $> B$.

Or let $s' \cdot \frac{1}{2}A + B : s' \cdot \frac{1}{2}A \cap B :: t' \cdot \frac{1}{2}C : t. M$, which is $>$ or $< 90^\circ$ as $A + B$ is $>$ or $< 180^\circ$; and $s \cdot \frac{1}{2}A + B : s \cdot A \cap B :: t' \cdot \frac{1}{2}C : t. N$, $< 90^\circ$. then $a = M \pm N$; and $b = M - N$.

Again let $r : s'c :: t. A : t. M$, like or unlike A as c is $<$ or $> 90^\circ$; and $N = B \cap M$.

Then $s' \cdot M : s' \cdot N :: s' \cdot A : s' \cdot c$, like or

unlike N as c is $<$ or $> 90^\circ$. Or,

$$s \cdot \frac{1}{2}C = \sqrt{\frac{s \cdot A \times s \cdot B \times s^2 \cdot \frac{1}{2}C}{rr} + s^2 \cdot \frac{1}{2}A \cap B}.$$

In logarithms, put $L. Q = 2L. s \cdot \frac{1}{2}A \cap B$; and $L. R = L. s \cdot A + L. s \cdot B + 2L. s \cdot \frac{1}{2}C - 20$; then $L. s \cdot \frac{1}{2}C = \frac{1}{2}L. Q \mp R$.

Case 4. Given a, b , and included side c . First, let $r : s'c :: t. a : t' \cdot m$, like or unlike a as c is $<$ or $> 90^\circ$; also $n = b \cap m$. Then $s' \cdot n : s' \cdot m :: t. c : t. A$, like or unlike n as a is $<$ or $> 90^\circ$.

Or, let $s' \cdot \frac{1}{2}a + b : s' \cdot \frac{1}{2}a \cap b :: t' \cdot \frac{1}{2}C : t. M$, $>$ or $< 90^\circ$ as $a + b$ is $>$ or $< 180^\circ$;

and $s \cdot \frac{1}{2}a + b : s \cdot \frac{1}{2}a \cap b :: t' \cdot \frac{1}{2}C : t. N$, $< 90^\circ$; then $A = M \pm N$; and $B = M \mp N$.

Again, let $r : s'c :: t. a : t' \cdot m$, like or unlike a as c is $<$ or $> 90^\circ$; and $n = b \cap m$:

then $s. m : s. n :: s' \cdot a : s' \cdot c$, like or unlike a as m is $<$ or $> b$.

Case 5. Given A, B , and an opposite angle a .

1st. $s. A : s. a :: s. B : s. b$, $<$ or $> 90^\circ$.

2nd. Let $r : s' \cdot B :: t. a : t' \cdot m$, like or unlike B as a is $<$ or $> 90^\circ$;

and $t. A : t. B :: s' \cdot m : s' \cdot n$, like or unlike A as a is $<$ or $> 90^\circ$;

then $c = m \pm n$, two values also.

3dly. Let $r : s' \cdot a : t. B : t. M$, like or unlike B as a is $<$ or $> 90^\circ$;

and $s' \cdot B : s' \cdot A :: s' \cdot m : s' \cdot n$, like or unlike A as a is $<$ or $> 90^\circ$;

then $c = m \pm n$, two values also.

But if A be equal to B , or to its supplement, or between B and its supplement; then is b like to B : also c is $= m \pm n$, and $c = M \pm N$, as B is like or unlike a .

Case 6. Given a, b , and an opposite side A .

1st. $s. a : s. A :: s. b : s. B$, $<$ or $> 90^\circ$.
2nd.

2nd. Let $r : s'b :: t.A : t.M$, like or unlike b as A is $<$ or $> 90^\circ$;

and $t.a : t.b :: s.M : s.N$, $<$ or $> 90^\circ$;

then $c = M \pm N$, as a is like or unlike b .

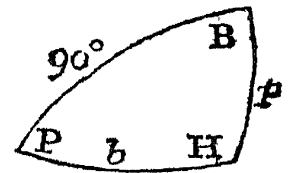
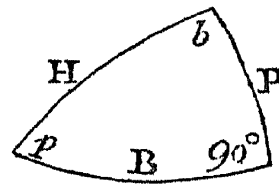
3dly. Let $r : s'A :: t.b : t'm$, like or unlike b as A $<$ or $> 90^\circ$;

and $s'b : s'a :: s.m : s.n$, $<$ or $> 90^\circ$;

then $c = m \pm n$, as a is like or unlike b .
But if A be equal to B , or to its supplement, or between B and its supplement; then B is unlike b , and only the less values of N, n , are possible.

Note. When two sides A, B , and their opposite angles a, b , are known; the third side c , and its opposite angle C , are readily found thus:

$s. \frac{1}{2} a \cos b : s. \frac{1}{2} a + b :: t. \frac{1}{2} A \cos B : t. \frac{1}{2} C$
 $s. \frac{1}{2} A \cos B : s. \frac{1}{2} A + B :: t. \frac{1}{2} a \cos b : t. \frac{1}{2} C$



III. In a right-angled spheric triangle, where H is the hypotenuse, or side opposite the right angle, B, P the other two sides, and b, p their opposite angles; any two of these five terms being given, to find the rest: the cases, with their solutions, are as in the following table.

The same table will also serve for the quadrantal triangle, or that which has one side $= 90^\circ$, H being the angle opposite that side, B, P the other two angles, and b, p their opposite sides: observing, instead of H to take its supplement; and mutually change the terms like and unlike for each other where H is concerned.

Case	Given	Req ^d .	S O L U T I O N S.
1	H B	b p P	$s.H : r :: s.B : s.b$, and is like B $r : t'H :: t.B : s'p$, $s'B : r :: s'H : s'p$, } $<$ or $> 90^\circ$ as H is like or unlike B
2	H b	B P p	$r : s.H :: s.b : s.B$, like b $r : s'b :: t.H : t.P$, $s'H : r :: t.b : t'p$, } $<$ or $> 90^\circ$ as H is like or unlike B
3	B b	H P p	$s.b : r :: s.B : s.H$ $r : t.B :: t'b : s.P$, $s'B : r :: s'b : s.p$, } each $<$ or $> 90^\circ$; both values true
4	B p	H b P	$r : t'B :: s'p : t'H$, $<$ or $> 90^\circ$ as B is like or unlike p $r : s'B :: s.p : s'b$, like B $r : s.B :: t.p : t.P$, like p
5	B P	H b p	$r : s'B :: s'P : s'H$, $<$ or $> 90^\circ$ as B is like or unlike P $r : s.P :: t'B : t'b$, like B $r : s.B :: t'P : t'p$, like P
6	p b	H B P	$r : t'p :: t'p : s'H$, $<$ or $> 90^\circ$ as b is like or unlike p $s.p : r :: s'b : s'B$, like b $s.b : r :: s'p : s'P$, like p

The following Propositions and Remarks, concerning Spherical Triangles, (selected and communicated by the Reverend Nevil Maskelyne, D.D. Astronomer Royal, and F.R.S.), will also render the Calculation of them perspicuous, and free from Ambiguity.

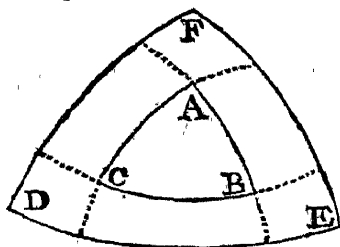
1. A spherical triangle is equilateral, isoscelar, or scalene, according as it has its three angles all equal, or two of them equal, or all three unequal; and *vice versa*.

2. The greatest side is always opposite the greatest angle, and the smallest side opposite the smallest angle.

3. Any two sides taken together, are greater than the third.

4. If the three angles are all acute, or all right, or all obtuse; the three sides will be, accordingly, all less than 90° , or equal to 90° , or greater than 90° ; and *vice versa*.

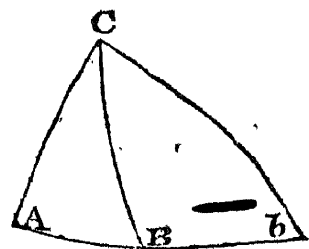
5. If from the three angles A, B, C, of a triangle ABC, as poles, there be described, upon the surface



of the sphere, three arches of a great circle DE, DF, FE, forming by their intersections a new spherical triangle DEF; each side of the new triangle, will be the supplement of the angle

at its pole; and each angle of the same triangle, will be the supplement of the side opposite to it in the triangle ABC.

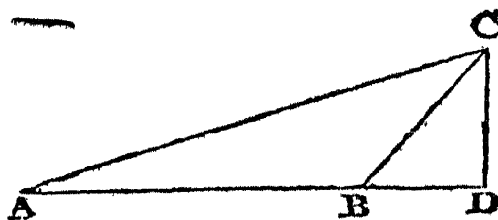
6. In any triangle ABC, or abc, right angled in A, 1st, The angles at the hypotenuse are always of the same kind as their opposite sides; 2dly, The hypotenuse is



less or greater than a quadrant, according as the sides including the right angle, are of the same or different kinds; that is to say, according as these same sides are either both acute or both obtuse, or as one is acute and the other obtuse. And, *vice versa*, 1st, The sides including the right angle, are always of the same kind as their opposite angles; 2dly, The sides including the right angle will be of the same or different kinds, according as the hypotenuse is less or more than 90° ; but one at least of them will be of 90° , if the hypotenuse is so."

THE CASES OF PLANE TRIANGLES RESOLVED BY LOGARITHMS.

IN this and the following solutions of spherical triangles, it is to be observed, that when we say the sine, tangent, &c. we mean the logarithmic sine, tangent, &c, as found by the table.



Prop. I. *Having the angles, and one side; to find either of the other sides.*

Add the logarithm of the given side to the sine of the angle opposite to the side required, and from the sum subtract the sine of the angle opposed to the given side; the remainder will be the logarithm of the side required.

Example. In the triangle BCD, having the angle CDB 90° , CBD $51^\circ 56'$, BCD $38^\circ 4'$, and the side BD 197.3; to find the side CD.

$$\begin{array}{r}
 2.2951271 \text{ log. of } 197.3 \\
 9.8961369 \text{ sin. of } 51^\circ 56' \\
 \hline
 12.1912640 \text{ sum} \\
 9.7899880 \text{ sin. of } 38^\circ 4' \\
 \hline
 2.4012760 \text{ log. } 251.9278 \text{ CD req.}
 \end{array}$$

Or you may add the complement of the sine of the angle opposed to the given side, to the two other logarithms, the sum, (abating radius) is the logarithm of the side required; as shewn in art. 3, of Log. Arith. And it is to be observed, that the complements of the sines in the table are to be found in the columns of the cosecants: for (passing over the first unit), the cose-

cants of the same arcs, are the complements of the same sines. Also the complements of the tangents, are the cotangents.

Example. The sine of $38^\circ 4'$ being 9.7899880, the cosecant of $38^\circ 4'$ is 10.2100120, which (omitting the first unit), is the complement of the said sine.

$$\begin{array}{r}
 0.2100120 \text{ co. of sin. } 38^\circ 4' \\
 2.2951271 \text{ log. of } 197.3 \\
 9.8961369 \text{ sin. of } 51^\circ 56' \\
 \hline
 2.4012760 \text{ log. } 251.9278, \text{ as bef.}
 \end{array}$$

But if one side and the angles of a right-angled triangle be known, and you would have the other side, as in the former example, the operation will be easier, thus;

Add the tangent of the angle opposite to the side required, to the logarithm of the given side, the sum (abating radius) is the logarithm of the side required.

$$\begin{array}{r}
 10.1061489 \text{ tang. } 51^\circ 56' \\
 2.2951271 \text{ log. of } 197.3 \\
 \hline
 2.4012760 \text{ log. } 251.9278 \text{ as bef.}
 \end{array}$$

Prop. II. *Having two sides, and an angle opposite to one of them; to find the other two angles, and the third side.*

Add the sine of the angle given, to the logarithm of the side adjoining that angle, and from the sum subtract the logarithm of the side opposite to that angle, or add its ar. com. the remainder or sum will be the sine of the angle opposite to the adjoining side.

Example. In the triangle ABC, having the side AC 800, BC 320, and the

the angle ABC $128^{\circ} 4'$; to find the angles BAC, ACB, and the side AB.

$$\begin{array}{r} 7.0969100 \text{ ar. com. log. } 800. \\ 2.5051500 \text{ log. of } 320. \\ \hline 9.8961369 \text{ sin. } 128^{\circ} 4' \\ 9.4981969 \text{ sin. } 18 \quad 21 \text{ BAC.} \end{array}$$

Having BAC and ABC, the angle ACB is their complement to 180° viz. $33^{\circ} 35'$; and you may find the side AB by the first proposition.

Prop. III. *Having two sides, and the angle between them; to find the other two angles, and the third side.*

If the angle included be a right angle, add the radius to the logarithm of the lesser side, and from the sum subtract the logarithm of the greater side, or add its ar. com. the remainder or sum will be the tangent of the angle opposed to the lesser side.

Example. In the triangle BCD, having the side BE 197.3 , and CD 251.9 ; to find the angles BCD, CBD, and the side CB.

$$\begin{array}{r} 7.5987728 \text{ ar. com. log. } 251.9 \\ 32.2951271 \text{ rad. } + \text{ log. } 197.3 \\ \hline 9.8938989 \text{ tan. } 38^{\circ} 4' \text{ BCD.} \end{array}$$

But if the angle included be oblique; add the logarithm of the difference of the given sides to the tangent of half the sum of the unknown angles, and from the sum subtract the logarithm of the sum of the given sides, or add its complement; the remainder or sum will be the tangent of half their difference.

Example. In the triangle ABC, having the side AB 562 , BC 320 , and the angle ABC $128^{\circ} 4'$; to find the angles BAC, ACB, and the side AC.

The sum of the given sides is 882 , and the difference 242 , the half sum of the unknown angles is $25^{\circ} 58'$.

$$\begin{array}{r} 7.0545314 \text{ comp. log. } 882 \\ 2.3838154 \text{ log. of } 242 \\ \hline 9.6875402 \text{ tang. } 25^{\circ} 58' \\ 9.1258870 \text{ tang. } 7 \quad 37 \\ \hline \quad \quad 25 \quad 58 \end{array}$$

$$\begin{array}{r} \text{Angle ACB} - - 33 \quad 35 \text{ sum,} \\ \text{Angle CAB} - - 18 \quad 21 \text{ dif.} \end{array}$$

These $7^{\circ} 37'$ being added to $25^{\circ} 58'$ the half sum of the angles unknown, the sum is $33^{\circ} 35'$ for the greater angle ACB; and the same $7^{\circ} 37'$ being subtracted from $25^{\circ} 58'$, the remainder is $18^{\circ} 21'$ for the lesser angle CAB. Lastly, knowing the angles, and two sides, the third side may be found by the first proposition.

Prop. IV. *Having the three sides; to find any angle.*

Add the three sides together, and take half the sum, and the differences betwixt the half sum and each side: then add the complements of the logarithms of the half-sum, and of the difference between the half-sum and the side opposite to the angle sought, to the logarithms of the differences of the half-sum and the other sides; half their sum will be the tangent of half the angle required.

Example. In the triangle ABC, having the side AB 562 , AC 800 , and BC 320 , to find the angle ABC.

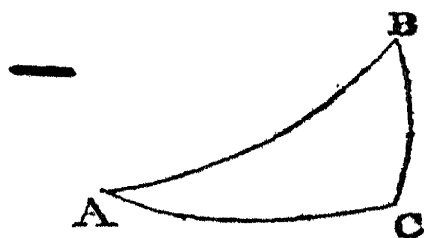
$$\begin{array}{r} \text{AC} = 800 \quad \text{H} = 841. \quad \text{CO. } 7.0752040 \\ \text{AB} = 562 \quad \text{H} - \text{AC} = 41. \quad \text{CO. } 8.3872161 \\ \text{BC} = 320 \quad \text{H} - \text{AB} = 279. \quad \text{CO. } 2.4456042 \\ \hline \text{sum } 1682 \quad \text{H} - \text{BC} = 521. \quad \text{CO. } 2.7168377 \\ \hline \frac{1}{2} \text{ sum } 841 = \text{H} \quad \text{sum } 20.6248620 \end{array}$$

Tang. of $64^{\circ} 2' = \frac{1}{2} \text{ sum } 10.3124310$
Whose double $128^{\circ} 4'$ is the angle ABC.

THE CASES OF SPHERICAL TRIANGLES RESOLVED BY LOGARITHMS.

THE resolution of spherical triangles is to be performed by the table of sines, tangents and secants; which we shall shew by the 28 propositions following; whereof 16 are of right-angled, and 12 are of oblique triangles; and first

Of the right-angled triangles.



Prop. I. *Having the legs; to find the hypotenuse.*

Add the cosine of one leg, to the cosine of the other leg; the sum, (abating radius) is the cosine of the hypotenuse required.

Example. In the right-angled triangle ABC, having AC $27^{\circ} 54'$, and BC $11^{\circ} 30'$; to find AB the hypotenuse.

$$\begin{array}{r} 9.9911927 \text{ cosin. } 11^{\circ} 30' \\ 9.9463371 \text{ cosin. } 27 \quad 54 \\ \hline 9.9375298 \text{ cosin. } 30 \quad \text{AB req.} \end{array}$$

Prop. II. *Having the two legs; to find either of the angles.*

Add the sine of the leg next the angle sought, to the cotangent of the other leg; the sum, (abating radius) is the cotangent of the angle required.

Example. In the right-angled triangle ABC, having AC $27^{\circ} 54'$, and BC $11^{\circ} 30'$; to find the angle BAC.

$$\begin{array}{r} 9.6701807 \text{ sin. next leg } 27^{\circ} 54' \\ 10.6915374 \text{ cot. opp. leg. } 11 \quad 30 \\ \hline 10.3617181 \text{ cotan. BAC } 23 \quad 30 \end{array}$$

Prop. III. *Having the hypotenuse, and one of the angles; to find the other angle.*

Add the cosine of the hypotenuse to the tangent of the angle given; the sum, (abating radius) is the cotangent of the angle required.

Example. In the right-angled triangle ABC, having the hypotenuse AB 30° , and the angle ABC $69^{\circ} 22'$; to find the angle BAC.

$$\begin{array}{r} 9.9375306 \text{ cosin. hyp. AB. } 30^{\circ} 00' \\ 10.4241896 \text{ tang. ABC } - \quad 69 \quad 22 \\ \hline 10.3617202 \text{ cotan. BAC } - \quad 23 \quad 30 \end{array}$$

Prop. IV. *Having the hypotenuse, and one of the angles; to find the leg next the given angle.*

Add the tangent of the hypotenuse to the cosine of the angle given; the sum, (abating radius) is the tangent of the leg required.

Example. In the right-angled triangle ABC, having the hypotenuse AB 30° , and the angle ABC $69^{\circ} 22'$; to find the leg BC.

$$\begin{array}{r} 9.7614393 \text{ tang. hyp. AB } 30^{\circ} 00' \\ 9.5470188 \text{ cosin. ABC } - \quad 69 \quad 22 \\ \hline 9.3084581 \text{ tang. BC } - \quad 11 \quad 30 \end{array}$$

Prop. V. *Having the hypotenuse, and one of the angles; to find the leg opposed to the given angle.*

Add the sine of the hypotenuse to the sine of the angle given; the sum, (abating radius) is the sine of the leg required.

Example. In the right-angled triangle ABC, having the hypotenuse AB 30° , and the angle BAC $23^{\circ} 30'$; to find the leg BC.

$$\begin{array}{r} 9.6989700 \text{ sin. hyp. AB } 30^{\circ} 00' \\ 9.6006997 \text{ sin. BAC } - \quad 23 \quad 30 \\ \hline 9.2996697 \text{ sin. BC } - \quad 11 \quad 30 \end{array}$$

Prop.

Prop. VI. *Having one of the legs, and the angle next it; to find the hypotenuse.*

Add the cotangent of the given leg; to the cosine of the given angle; the sum, (abating radius) is the cotangent of the hypotenuse required.

Example. In the right-angled triangle ABC, having the leg AC $27^{\circ} 54'$, and the angle BAC $23^{\circ} 30'$; to find the hypotenuse AB.

$$\begin{array}{r} 10.2761563 \text{ cot. AC } - 27^{\circ} 54' \\ 9.9623977 \text{ cos. BAC } - 23 \quad 30 \\ \hline 10.2385540 \text{ cot. hyp. AB } 30 \quad 00 \end{array}$$

Prop. VII. *Having one of the legs, and the angle next it; to find the other leg.*

Add the sine of the leg given to the tangent of the angle given; the sum, (abating radius) is the tangent of the leg required.

Example. In the right-angled triangle ABC, having the leg AC $27^{\circ} 54'$, and the angle BAC $23^{\circ} 30'$; to find the leg BC.

$$\begin{array}{r} 9.6701807 \text{ sin. AC } 27^{\circ} 54' \\ 9.6383019 \text{ tan. BAC } 23 \quad 30 \\ \hline 9.3084826 \text{ tan. BC } 11 \quad 30 \end{array}$$

Prop. VIII. *Having one of the legs, and the angle next it; to find the other angle.*

Add the cosine of the given leg to the sine of the given angle; the sum, (abating radius) is the cosine of the angle required.

Example. In the right-angled triangle ABC, having the leg BC $11^{\circ} 30'$, and the angle ABC $69^{\circ} 22'$; to find the angle BAC.

$$\begin{array}{r} 9.9911927 \text{ cos. BC } 11^{\circ} 30' \\ 9.9712084 \text{ sin. ABC } 69 \quad 22 \\ \hline 9.9624011 \text{ cos. BAC } 23 \quad 30 \end{array}$$

Prop. IX. *Having one of the legs, and the angle opposed unto it; to find the hypotenuse.*

Add the radius to the sine of the given leg, and from the sum subtract

the sine of the given angle, or add its cosecant; the remainder or sum is the sine of the hypotenuse required.

Example. In the right-angled triangle ABC, having the leg BC $11^{\circ} 30'$, and the angle BAC $23^{\circ} 30'$; to find the hypotenuse AB.

$$\begin{array}{r} 9.2996553 \text{ sin. BC } 11^{\circ} 30' \\ 0.3993003 \text{ cos. BAC } 23 \quad 30 \\ \hline 9.6989556 \text{ sin. AB } 30 \text{ reqd.} \end{array}$$

Prop. X. *Having one of the legs, and the angle opposed unto it; to find the other leg.*

Add the tangent of the given leg; to the cotangent of the given angle; the sum, (abating radius) is the sine of the leg required.

Example. In the right-angled triangle ABC, having the leg BC $11^{\circ} 30'$, and the angle BAC $23^{\circ} 30'$; to find the leg AC.

$$\begin{array}{r} 9.3084626 \text{ tang. BC } 11^{\circ} 30' \\ 10.3616981 \text{ cot. BAC } 23 \quad 30 \\ \hline 9.6701607 \text{ sin. AC } 27 \quad 54 \end{array}$$

Prop. XI. *Having one of the legs, and the angle opposed unto it; to find the other angle.*

Add the radius to the cosine of the given angle, and from the sum subtract the cosine of the given leg, or add the secant; the remainder or sum is the sine of the angle required.

Example. In the right-angled triangle ABC, having the leg BC $11^{\circ} 30'$, and the angle BAC $23^{\circ} 30'$; to find the angle ABC.

$$\begin{array}{r} 9.9623977 \text{ cos. BAC } 23^{\circ} 30' \\ 0.0088073 \text{ sec. BC } 11 \quad 30 \\ \hline 9.9712050 \text{ sin. ABC } 69 \quad 22 \end{array}$$

Prop. XII. *Having one of the legs, and the hypotenuse; to find the angle next the given leg.*

Add the tangent of the given leg, to the cotangent of the hypotenuse, the sum (abating radius) is the cosine of the angle required.

Example.

Example. In the right-angled triangle ABC, having the leg AC $27^{\circ} 54'$, and the hypotenuse AB 30° ; to find the angle BAC.

$$\begin{array}{r} 9.7238436 \text{ tan. AC } 27^{\circ} 54' \\ 10.2385606 \text{ cot. AB } 30^{\circ} 00' \\ \hline 9.9624042 \text{ cof. BAC } 23^{\circ} 30' \end{array}$$

Prop. XIII. *Having one of the legs, and the hypotenuse; to find the angle opposed to the given leg.*

Add the radius to the sine of the given leg, and from the sum subtract the sine of the hypotenuse, or add its cosecant; the remainder or sum will be the sine of the angle required.

Example. In the right-angled triangle ABC, having the leg BC $11^{\circ} 30'$, and the hypotenuse AB 30° ; to find the angle BAC.

$$\begin{array}{r} 9.2996553 \text{ sin. leg BC } 11^{\circ} 30' \\ 0.3010300 \text{ cosec. hyp. AB } 30^{\circ} 00' \\ \hline 9.6006853 \text{ sine of BAC } 23^{\circ} 30' \end{array}$$

Prop. XIV. *Having one of the legs, and the hypotenuse; to find the other leg.*

Add the radius to the cosine of the hypotenuse, and from the sum subtract the cosine of the given leg, or add its secant; the remainder or sum is the cosine of the leg required.

Example. In the right-angled triangle ABC, having the leg BC $11^{\circ} 30'$, and the hypotenuse AB 30° ; to find the leg AC.

$$\begin{array}{r} 9.9375306 \text{ cosin. AB } 30^{\circ} 00' \\ 0.0088073 \text{ sec, BC } 11^{\circ} 30' \\ \hline 9.9463379 \text{ cosin, AC } 27^{\circ} 54' \end{array}$$

Prop. XV. *Having the angles; to find the hypotenuse.*

Add the cotangent of one oblique angle to the cotangent of the other oblique angle; the sum, (abating radius) is the cosine of the hypotenuse required.

Example. In the right-angled triangle ABC, having the angle BAC

$23^{\circ} 30'$, and the angle ABC $69^{\circ} 22'$; to find the hypotenuse AB.

$$\begin{array}{r} 0.3616981 \text{ cot. BAC } 23^{\circ} 30' \\ 9.5758104 \text{ cot. ABC } 69^{\circ} 22' \\ \hline 9.9375085 \text{ cos. hyp. AB } 30^{\circ} 00' \end{array}$$

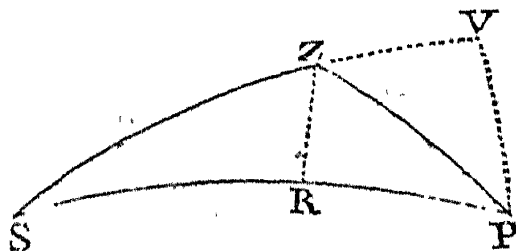
Prop. XVI. *Having the angles; to find either of the legs.*

Add the radius to the cosine of either oblique angle, and from the sum subtract the sine of the other oblique angle, or add its cosecant; the remainder or sum will be the cosine of the leg opposite to the angle, whose cosine was taken.

Example. In the right-angled triangle ABC, having the angle BAC $23^{\circ} 30'$, and the angle ABC $69^{\circ} 22'$; to find the leg BC.

$$\begin{array}{r} 9.9623977 \text{ cosin. BAC } 23^{\circ} 30' \\ 0.0287916 \text{ cosec. ABC } 69^{\circ} 22' \\ \hline 9.9911893 \text{ cosin. BC } 11^{\circ} 30' \end{array}$$

Of Oblique Triangles.



Prop. XVII. *Having the three sides, to find any of the angles.*

Add the three sides, and take half the sum, and the difference between the half sum and the side opposite to the angle sought. Then add the cosecants, or the complements of the sines, of the other sides, to the sines of the half sum and of the said difference; half the sum of these four logarithms is the cosine of half the angle required.

Example. In the triangle SZP, having the side ZS 40° , PS 70° , and SZ $38^{\circ} 30'$; to find the angle ZPS.

PS = 70° 0'	cofec.	0.0270142
PZ = 38 30	cofec.	0.2058505
ZS = 40 0	fin. $\frac{1}{2}$ sum	9.9833805
Sum 148 30	fin. dif.	9.7503579
$\frac{1}{2}$ sum 74 15		2) 19.9666031
ZS = 40 0	cof. 15° 47'	9.9833015
Diff. 34 15	ZPS 31 34	required.

Prop. XVIII. *Having the three angles; to find any of the sides.*

Let the angles be changed into sides, taking the supplement of the greater; then the operation will be the same as in the former proposition.

Prop. XIX. *Having two angles, and a side opposed to one of them; to find the side opposed to the other angle.*

Add the sine of the side given to the sine of the angle opposite to the side required; and from the sum subtract the sine of the angle opposite to the side given, or add its cosecant; the remainder or sum will be the sine of the side required.

Example. In the triangle SZP, having the angle, SZP 130° 3' 12'', SPZ 31° 34' 26'', and the side ZS 40°; to find the side PS.

9.8080675	fin. ZS	40° 0' 0''
9.8838294	} fin. SZP	{ 49 56 .
850		
0.2808858	} cof. SPZ	{ 31 35 .
1165		
9.9729842	fin. PS reqd.	70 0 0

See pa. 168 following.

Prop. XX. *Having two angles, and a side opposed to one of them; to find the side between the angles given.*

Let a perpendicular fall from the angle unknown, upon its opposite side: then add the cosine of the given angle next the given side, to the tangent of the given side; the sum, (abating radius) is the tangent of the first arc, comprehended between the given angle next the given side, and the segment of the side where the perpendicular falls.

And the second arc comprehended between the same segment and the other angle, is to be found thus: add the sine of the arc found, to the tangent of the given angle next the given side, and from the sum subtract the tangent of the other angle given, or add its cotangent; the remainder or sum will be the sine of the second arc.

The sum or difference of these two arcs will be the side required.

Example. In the triangle SZP, having the angle ZPS 31° 34' 26'', ZSP 30° 28' 12'', and the side PZ 38° 30'; to find the side SP.

9.9303781	} cof. ZPS	{ 31° 35' .
440		
9.9006052	} tan. PZ	{ 38 30 0
9.8310273		
9.7488698	} fin. PR	{ 34 7 .
932		
9.7884529	} tan. ZPS	{ 31 34 .
1227		
0.2301404	} cot. ZSP	{ 30 29 .
2313		
9.7679103	fin. SR 2d arc	35 52 30
	add PR 1st arc	34 7 30
	sum is SP	70 0 0

See page 168 following.

But when the perpendicular falls out of the triangle, the difference of the two arcs will be the side required,

Prop. XXI. *Having two angles, and a side opposite to one of them; to find the third angle.*

Let a perpendicular fall from the angle unknown, upon its opposite side: then add the cosine of the given side to the tangent of the adjacent angle; the sum, (abating radius) is the cotangent of the first angle to be found, comprehended by the given side and the perpendicular.

And the second angle, comprehended by the perpendicular and the side unknown, is to be found thus: add the sine of the angle found, to the cosine of the given angle opposite to the given side,

side, and from the sum subtract the cosine of the other angle given, or add its secant; the remainder or sum will be the sine of the second angle.

The sum or difference of these two angles will be the angle required.

Example. In the triangle szp , having the angle zps $31^{\circ} 34' 26''$, zsp $30^{\circ} 28' 12''$, and the side pz $38^{\circ} 30'$; to find the angle szp .

9.8935444	cosin. pz	$38^{\circ} 30' 0''$
9.7884529	} tang. zps	$\left\{ \begin{array}{l} 31^{\circ} 34' \\ . \\ . \\ 26 \end{array} \right.$
1227		
9.6821200	cot. $1st \angle pZR$ $64^{\circ} 18' 50''$	
9.9547619	} fin. pZR	$\left\{ \begin{array}{l} 64^{\circ} 18' \\ . \\ . \\ 50 \end{array} \right.$
507		
9.9353948	} cos. zsp	$\left\{ \begin{array}{l} 30^{\circ} 29' \\ . \\ . \\ 48 \end{array} \right.$
594		
0.0695443	} fec. zps	$\left\{ \begin{array}{l} 31^{\circ} 34' \\ . \\ . \\ 26 \end{array} \right.$
336		
9.9598447	fin. $2d \angle szp$ $65^{\circ} 44' 21''$	
	then add $1st \angle pZR$ $64^{\circ} 18' 50''$	

the sum is szp $130^{\circ} 3' 11''$
See page 168 following.

But when the perpendicular falls out of the triangle, the difference of the two angles will be the angle required.

Prop. XXII. *Having two sides, and the angle between them; to find either of the other angles.*

Let a perpendicular fall from the unknown angle, which is not required, upon its opposite side: then add the cosine of the given angle to the tangent of the given side opposite to the angle required; the sum, (abating radius) is the tangent of the first arc, comprehended between the given angle and the segment of the given side where the perpendicular falls.

And the second arc is the difference of that side and the first arc, being comprehended between the same segment and the angle required.

Now add the sine of the first arc, to the tangent of the given angle, and from the sum subtract the sine of the second arc, or add its cosecant; the remainder or sum will be the tangent of the angle required.

Example. In the triangle szp , having the side pz $38^{\circ} 30'$, ps 70° , and the angle zps $31^{\circ} 34' 26''$; to find the angle zsp .

9.9303781	} cosin. zps	$\left\{ \begin{array}{l} 31^{\circ} 34' \\ . \\ . \\ 26 \end{array} \right.$
440		
9.9006052	tang. pz $38^{\circ} 30' 0''$	
9.8310273	tan. PR , $1st$ arc $34^{\circ} 7' 30''$	
	taken from ps $70^{\circ} 0' 0''$	
	leaves SR , $2d$ arc $35^{\circ} 52' 30''$	
9.7488698	} sin. PR	$\left\{ \begin{array}{l} 34^{\circ} 7' \\ . \\ . \\ 30 \end{array} \right.$
932		
9.7884529	} tang. zps	$\left\{ \begin{array}{l} 31^{\circ} 34' \\ . \\ . \\ 26 \end{array} \right.$
1227		
0.2320011	} cofec. SR	$\left\{ \begin{array}{l} 35^{\circ} 53' \\ . \\ . \\ 30 \end{array} \right.$
873		
9.7696270	tan. zps req. $30^{\circ} 28' 12''$	

See page 168 following.

To find both the unknown angles.

Add together the cosecant, or the complement of the sine, of half the sum of the given sides, the sine of half their difference, and the cotangent of half the angle given; the sum, (abating radius) is the tangent of half the difference of the angles required.

Add also together the secant, or the complement of the cosine, of half the sum of the given sides, the cosine of half their difference, and the cotangent of half the angle given; the sum, (abating radius) is the tangent of half the sum of the angles required.

Then add the half difference of the angles required, to their half sum, and you will have the greater angle; and subtract the half-difference from the half-sum, and you will have the lesser angle required, the same as in the former operation.

9.8935444	cofin. PZ	38° 30' 0"
9.7884529	tang. SPZ	{ 31 34 .
1227		{ . . 26
9.6821200	cot. PZR, 1st	< 64 18 50
	taken from SZP	130 3 12
	leaves SZR, 2d	< 65 44 22

9.6368859	cofin. PZR	{ 64 19 .
437		{ . — 10
9.9006052	tang. PZ	38 30 0
0.3861750	fec. SZR	{ 65 44 .
1028		{ . . 22

9.9238126 tan. SZ req. 40 0 0

See page 168 following.

To find both the unknown sides.

Add together the cosecant, or the complement of the sine, of half the sum of the angles given, the sine of half

their difference, and the tangent of half the given side; the sum (abating radius) is the tangent of half the difference of the sides required.

Add also together the secant, or the complement of the cosine, of half the sum of the given angles, the cosine of half their difference, and the tangent of half the given side; the sum, (abating radius) is the tangent of half the sum of the sides required.

Then add half the difference of the sides required, to their half sum, and you will have the greater side; and subtract the half difference from the half sum, and you will have the lesser side required, the same as in the former operation.

SZP	130° 3' 12"
SPZ	31 34 26
Sum	161 37 38
Dif.	98 28 46
$\frac{1}{2}$ Sum	80 48 49
$\frac{1}{2}$ Dif.	49 14 23
PZ	38 30 0
$\frac{1}{2}$ PZ	19 15 0

Cofec. $\frac{1}{2}$ sum	0.0056062	Sec. $\frac{1}{2}$ sum	0.7968360
Sin. $\frac{1}{2}$ diff.	9.8793527	Cofin. $\frac{1}{2}$ diff	9.8148437
Tang. $\frac{1}{2}$ PZ	9.5430936	Tang. $\frac{1}{2}$ PZ	9.5430936
Tang of 15°	9.4280525	Tang. of 55°	10.1547733
Half sum of the sides required is			55°
Half their difference is			15
The greater side SP is			70
Lesser side SZ is, as before,			40

Prop. XXVIII. Having two angles and the side between them; to find the third angle.

Let a perpendicular fall from either of the angles given, upon its opposite side: then add the cosine of the side given to the tangent of the given angle, from which the perpendicular does not fall; the sum, (abating radius) is the cotangent of the first angle, comprehended by the given side and the perpendicular.

And the second angle is the difference between the first and the given angle that the perpendicular fell from, being comprehended by the perpendicular and the side opposite to the other angle given.

Now add the sine of the second angle to the cosine of that given angle from which the perpendicular did not fall, and from the sum subtract the

sine of the first angle found, or add its cosecant; the remainder or sum will be the cosine of the angle required.

Example. In the triangle SZP, having the angle SZP 130° 3' 12", SPZ 31° 34' 26", and the side PZ 38° 30'; to find the angle PSZ.

9.8935444	cofin. PZ	38 30 0
9.7884529	tang. SPZ	{ 31 34 .
1227		{ . . 26
9.6821200	cotan. PZR, 1st	< 64 18 50
	taken from SZP	130 3 12
	leaves SZR, 2d	< 65 44 22
0.0451773	cosec. PZR	{ 64 19 .
101		{ . — 10
9.9303781	cofin. SPZ	{ 31 35
440		{ . — 34
9.9598246	fin. SZR	{ 65 44 .
209		{ . . 22
9.9354550	cofin. PSZ req.	30 28 0

See page 168 following.

FOR

FOR THE USE OF THE VERSED SINES MAY BE ALSO ADDED
THE FOLLOWING PROPOSITIONS.

Prop. I. *Having two sides of a spheric triangle, with the angle between them; to find the third side.*

ADD the log. versed sine of the contained angle, and the log. sines of the two sides together; the sum (abating twice the radius) is the logarithm of a number to be found, which added to the natural versed sine of the difference of the two given sides, the sum will be the natural versed sine of the third side sought.

Or when the contained angle is above 90° , add the log. versed sine of its supplement, and the log. sines of the two sides together; the sum (abating twice the radius) is the logarithm of a number to be found, and subtracted from the natural versed sine of the sum of the two given sides, the remainder will be the natural versed sine of the third side sought.

Example 1. In the triangle szp , having the side pz $38^\circ 30'$, ps 70° , and the angle zps $31^\circ 34' 26''$; to find the side zs .

9.1703625	log. ver. sine zps $31^\circ 34' 26''$	
9.7941496	log. sine of pz $38^\circ 30'$	0
9.9729858	log. sine of ps 70°	0
<hr/>		
8.9374979	log. of the numb.	865960
Nat. verif. diff. sides $31^\circ 30'$		1473598
Nat. verif. zs 40°		2339558

Example 2. In the triangle szp , having the side pz $38^\circ 30'$, zs 40° , and

the angle szp $130^\circ 3' 12''$; to find the side ps .

The angle vzp is the supplement of szp .

9.5520590	log. verif. vzp $49^\circ 56' 48''$	
9.7941496	log. sin. pz $38^\circ 30'$	0
9.8080675	log. sin. zs 40°	0
<hr/>		
9.1542761	log. of the number	1426514
Nat. verif. sum sides $78^\circ 30'$		8006328
Nat. verif. ps 70°		6579807

This proposition may be very useful in finding the distances of places on the earth, whose longitudes and latitudes are known; the distances of stars, whose declinations and right ascensions, or longitudes and latitudes, are known; and consequently the altitudes, or common altitude of two stars, or two altitudes of the sun, and time between the observations, or difference of azimuth, being taken, the latitude of the place may readily be found.

Prop. II. *Having two angles of a spheric triangle, and the side between them; to find the third angle.*

Let the angles be changed into sides, and the side into an angle; then do as in the former proposition, and the result will be the supplement of the third angle. But if one of the given angles exceed 90° , take its supplement, and the result will be the third angle.

The following remarks and directions, for rendering the proportional part of a logarithm always additive, and for using $c+t$, $c-t$, &c, for s or c &c. in the foregoing propositions, 20, 21, 22, 23, 25, 26, 27, 28, were communicated by the Rev. Nevil Maskelyne, D.D. astronomer royal, and F.R.S. the fourth case having been invented by him many years since, and delivered to the computers of the Nautical Ephemeris, as precepts necessary in computing the moon's distances from the stars in some cases, and the rest he has now added upon this occasion.

“ The result of trigonometrical calculations, will be sometimes inaccurate, owing to the logarithms not being carried to a greater number of places in the table, as will sufficiently appear from the logarithmic differences being small. This will happen where the answer comes out in the cosine of a very small angle, or the sine of an angle near 90° . The irregularity of the logarithmic differences of the sines, tangents, and cotangents of small arcs, and the cosines, tangents, and cotangents of arcs near 90° , will sometimes affect the accuracy of the result, unless allowance be made for second differences &c.—In oblique angled spherical triangles, put t , t' , s , c for the tangent, cotangent, sine, and cosine of the 1st arc or angle mentioned in the foregoing propositions, then in the 2d part of the work,

In prop. 20, if the first arc is very small,	for s use $c+t$
21 - - - angle is very small,	for s use $c-t'$
22 - - - arc is very small,	for s use $c+t$
23 - - - arc is near 90° ,	for $-c$ use $t-s$
25 - - - arc is near 90° ,	for c use $s-t$
26 - - - angle is near 90° ,	for c use $s+t'$
27 - - - angle is near 90° ,	for c use $s+t'$
28 - - - angle is very small,	for $-s$ use $t'-c$

This at the same time obviates the necessity of finding the first arc to a very minute exactness, and of allowing for second differences &c, which otherwise would be necessary in taking out the sine or cosine of the same arc in the second part of the work.

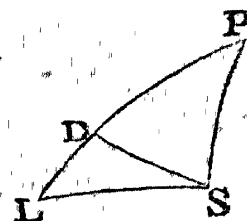
Where the foregoing precepts direct to subtract a sine or cosine, it will be readier in practice to add a cosecant or secant; and where they direct to subtract a tangent (which is done in prop. 26) it will be readier to add a cotangent. This method being used if it be required to find the logarithmic sines &c, to the exactness of a second, and the logarithm is increasing (as in the sines, tangents, and secants) write down the logarithm for the degree and minute without the seconds; and also write down the proportional part for the seconds; but, if the logarithm is decreasing (as in the cosines, cotangents, and cosecants) write down the logarithm for the next greater minute, and also write down the proportional part for the complement of the seconds to 60; and proceed in like manner with

with every logarithmic sine, cosine, &c. used in the work ; the sum of all the logarithms (abating one or two radii or tens in the index, according as 2 or 3 logarithmic sines &c are used in the part of the work in question) will be the logarithmic sine, cosine, tangent, or cotangent required.

Ex. 1. To find the log. sine of $34^{\circ} 17' 24''$
 Here log. sine of $34^{\circ} 17'$ - - - 9.7507287
 And as 60:24 or as 10:4::1853:- 741
 9.7508028

Ex. 2. To find the log. cos. of $55^{\circ} 42' 36''$
 Log. cos. of $55^{\circ} 43'$ - - - 9.7507287
 60:24 (60-36), or 10:4::1853:- 741
 9.7508028

Ex. 3. In the triangle PLS , given
 $P = 20^{\circ} 30' 48''$ } to find LS by prop. 23 ;
 $PS = 85^{\circ} 3' 40''$ } SD being perp. PL .
 $PL = 89^{\circ} 10' 0''$



$P 20^{\circ} 31' .''$	cos.	-	9.9715404		
- 12	-	-	95		
$PS 85^{\circ} 3'$	tan.	11.0624350	} cof. found by {		
40	-	9814		taking tang. {	-	8.9349686
	for 2d diff.	- 5	from sine		
$PD 84^{\circ} 43' 43''$	tan.	11.0349658	-	-	11.0349658
$PL 89^{\circ} 10' 0''$			cofec. $PD 84^{\circ} 44' .''$	-	10.0018374
$LD 4^{\circ} 26' 17''$			- 17	-	33
	cosin. $CD 4^{\circ} 27'$		-	-	9.9986888
	- 43		-	-	70
	cosin. $LS 20^{\circ} 53' 24''$		-	-	9.9704709

Here, to avoid the trouble of 2d differences, the cosine of PS is found by subtracting the tangent of it (already found) from the sine, which is easily found, because the differences are small: And, for the same reason, the sum of the tangent and cosecant of PD , are used instead of its secant.

N.B. The perpendicular should always be let fall from the end of the side, PS or PL , which differs most from 90° , over or under."

OF THE TRAVERSE TABLE.

THIS traverse table, or table of difference of latitude and departure, in page 338 & 339, is so contrived, as to have the whole in one view, and is so plainly titled as to want little or no explication.

The distances 1, 2, 3, &c. at the top and bottom, may be accounted 10, 20, 30 &c, and the 10 as 100,

if the minutes of latitude and departure answering to the course be increased in the same proportion; so that if the distance consists of two significant figures, the difference of latitude, and the departure, is each to be taken out at twice; and if of three figures, at thrice.

The chief design of this table is for the ready and exact working of traverses; but it may also be applied to the solution of the several cases of plain sailing, and to some other uses.

Prop. I. *Having the course and distance, to find the difference of latitude and departure.*

Seek the course on the left-hand of both pages downwards, if less than four points, or 45 degrees; or if greater, on the right hand upwards; and even with it in the double column, signed at the top and bottom with the distance, is found both the difference of latitude and the departure.

Example 1. A ship sails s s w $\frac{3}{4}$ w 37 miles; the difference of latitude, and the departure are required.

Find the course $2\frac{3}{4}$ points on the left-hand side of each page, and even with it in the double columns signed 3, and 7, the two figures of the distance, the difference of latitude for 30 is 25.732, and for 7 is 6.004; the sum is 31.736 for the whole difference of latitude; and the departure for 30 is 15.423, and for 7 is 3.599, the sum is 19.022 for the whole departure.

Thus, *Dist.* *Diff. Lat.* *Dep.*
 30 25.732 . . 15.423
 7 6.004 . . 3.599
 37 miles 31.736 . . 19.022

Example 2. A ship sails s n 49° 148 miles; the difference of latitude and the departure are required.

Find the course 49 degrees on the right-hand side of each page, and even with it in the double columns signed 10, 4, and 8, the difference of latitude at 100 miles is 65.606, at 40 is 26.242, and at 8 is 5.248; the sum is 97.096 for the whole difference of latitude. And the departure at 100 miles is 75.471, at 40 is 30.188, and

at 8 is 6.038; the sum is 111.697 for the whole departure. Thus,

<i>Dist.</i>	<i>Diff. Lat.</i>	<i>Depart.</i>
100	65.606	75.471
40	26.242	30.188
8	5.248	6.038
148 miles	97.096	111.697

Prop. II. *Having several courses and distances, to find the difference of latitude, and the departure.*

Make a table in the following manner, and put therein each course and distance; then find the difference of latitude and departure to each course by the preceding, and place them in the proper column; the difference of the sums of the northings and southings, is the whole difference of latitude; and the difference of the sums of the eastings and westings, is the whole departure.

Example. A ship from the latitude of 50° north, sails according to the courses and distances set in the traverse table; the difference of latitude, and the departure are found at the bottom.

Courses	Dist.	Diff. of Lat.		Departure.	
		North	South	East	West
SSE $\frac{1}{2}$ E	79		69.671	37.241	
SE $\frac{1}{4}$ E	86		54.557	66.479	
SbW $\frac{3}{4}$ W	108		101.687		36.384
S 45° W	112		74.942		83.231
N 85° W	70	6.101			69.734
S 40° W	84		64.348		53.994
		6.101	365.205	103.720	243.343
		6.101	6.101		103.720
		Diff. Lat. 359.104		Depart. 139.623	

The Traverse TABLE.

This proposition may be applied in the surveying of large tracts of land, as a county, &c. and was made use of by Mr. Norwood in measuring the distance from York to London, as the road led him, and observing the several bearings by his circumferentor, and finding by such a table his several differences of latitude; and departures, whereby he obtained the distance between the parallels of London and York pretty near the truth, so long ago as the year 1635: as may be seen in his Seaman's Practice.

Also in plotting the survey of a county thus taken, the circuit station-lines, though consisting of many hundreds, may be reduced to a few for the first closing, and the like for the intermediates of each line first plotted, whereby every station may perhaps be more truly placed than by any other method: the distances in the table may be chains of 66, or 100 feet as well as miles, or any other measure that the differences of latitude and departure would be had in.

Prop. III. *Having the difference of latitude, and the departure; to find the course and distance.*

Seek the given difference of latitude and departure, taken together, in their columns, or the nearest numbers to them; and the course is even therewith at the side, and the distance at the top and bottom: but if the given difference of latitude and departure cannot be found nearly, take $\frac{1}{2}$, $\frac{1}{4}$, &c. part, or any equal multiple of them that can be found; then the course is even with them at the side, and such a part of the distance, as was taken of the difference of latitude and departure, at the top and bottom.

Example 1. Given the difference of latitude 59 miles s, and the departure 68 miles w; the course and distance are required.

In the double column over 9, even with 49° at the right-hand side, is found

together the given difference of latitude and departure; therefore the course is 49° s w, and the distance 90 miles

Example 2. Given the difference of latitudes 30 miles N, and the departure 18 miles E; the course and distance are required.

Here the given difference of latitudes and departure, or any numbers near them, are not to be found together in the table, therefore taking $\frac{1}{2}$ or the double of each, the course is found to be 31° N E, and the distance 35 miles.

Note. A table computed to every mile in the distance up to a 100 miles, would more readily solve this example.

Prop. IV. *Having the departure and middle latitude; to find the difference of longitude, according to the method used by W. Jones, E. 95 F.R.S.*

Seek the given departure, or the next less number in the columns signed lat. even with the given middle latitude found among the courses, and at the top and bottom (signed dist.) is the difference of longitude sought; which if not found directly at once, may be taken out at twice or thrice.

Example 1. Being yesterday noon in the latitude of $37^\circ 17'$ N, and this day noon in $38^\circ 43'$ N, and by the table the departure is found 70.921 E; the difference of longitude is required.

In the column signed lat. under 9, even with 38° , the middle latitude, is found 7.0921 ; therefore 90 miles is the difference of longitude sought.

Example 2. Being yesterday noon in latitude $46^\circ 25'$ N, and this day at noon in $47^\circ 35'$ N, so that the middle latitude is 47° N, and the departure is found 112.53 miles W; required the difference of longitude?

In the column signed lat. over 10 at the bottom, even with 47° at the

Z 2

right-

right-hand side, is 6.8200; therefore subtracting 68.200 from 112.53, the remainder is 44.33; then over 6 is 4.0920, and 40.92 subtracted from 44.33 leaves 3.41, which is found over 5; wherefore the difference of longitude is 165 miles west.

If the middle latitude be not an even degree, but have odd minutes; find the difference of longitude, for the even degrees next less and greater, and add a proportional part of the difference between the two results to the lesser; the sum will be the difference of longitude sought.

Suppose the middle latitude in the last example had been $47^{\circ} 20' N$; then after finding the difference of longitude as before for 47° , find it also for 48° , which is 168 miles; then $\frac{2}{3}$ of the difference being added to the former, gives the difference of longitude 166 miles west.

Note. Though this method is not in all cases near the truth, yet when the miles are geographical, it is sufficiently near for daily practice in any voyage, as well as easy, and very expeditious.

Prop. V. *Having the latitudes and longitudes of two places, to find the bearing and distance.*

Seek the complement of the middle latitude among the degrees, and the difference of longitude in minutes among the distances, the departure answering is found in its proper column; then with the difference of latitudes and departure, find their bearing or course and distance by the third.

Example. Let the Lizard be given in the latitude of $49^{\circ} 50' N$, and $5^{\circ} 21' W$ longitude, and Cape Ortegal in the latitude of $44^{\circ} 10' N$, and $70^{\circ} 43' W$ longitude; to find the bearing and distance.

The difference of longitude is 142'; and in the columns signed dep. under 10, 4, and 2, even with 43° the complement latitude, are found 6.8200, 2.7280, and 1.3640; then increasing the two former as before shewn, their sum is 96.844 miles W, for the departure; and the bearing, or course, answering to 340 miles difference of latitude, with 96.844 departure, is found about $16^{\circ} S W$; and the distance about 354 miles.

OF MERCATOR'S SAILING.

THE uses of the table of meridional parts are fully supplied by the table of logarithmic tangents, as is demonstrated in N^o 219 of the Philosophical Transactions. It is there proved, 1st. That the meridional line, or scale of Mercator's Chart, is a scale of the log. tangents of the half complements of the latitudes. 2^{dly}. That such log. tangents of Mr. Briggs's form, are a scale of the differences of longitude, upon the rumb which makes an angle of $51^{\circ} 38' 9''$ with the meridian. And 3^{dly}. That the differences of longitude, on those rumb, are to one another as the tangents of the angles of

Hence it follows, that the difference of the log. tangents of the half complements of the latitudes, is to the difference of longitude a ship makes in sailing on any rumb from the one latitude to the other, as the tangent of $51^{\circ} 38' 9''$ (whose logarithm is 10.1015104) to the tangent of the angle of the rumb or course with the meridian; so that:

I. If two latitudes, and the difference of longitude be given, the course and distance are readily determined by this rule.

Take

Take, by help of the tables, the difference of the log. tangents of the half complements of the latitudes, esteeming the last three figures to be a decimal fraction; and add the complement of its logarithm to the logarithm of the difference of longitude reduced to minutes, and the constant log. 10.1015104 ; the sum (abating radius) shall be the log. tangent of the course. And to the log. secant of the course, add the logarithm of the difference of latitude reduced to minutes, the sum (abating radius) shall be the logarithm of the distance in minutes.

Example. Given the Lizard to be in latitude $49^{\circ} 55' N$, Barbadoes in $13^{\circ} 10' N$, and their difference of longitude $53^{\circ} 00'$, or $3180' W$; to find the course and distance.

$\frac{1}{2}$ Co lat.	{ Barbadoes $38^{\circ} 25'$	1. tan. 9.8993082	1. $3180' = 3.5024271$
	{ Lizard $20 2\frac{1}{2}$	1. tan. 9.5620477	const. log. 10.1015104
		diff. 3372.605	its co. log. 6.4720346
Log. tang. of the course	$49^{\circ} 59' 10''$ SW		10.0759721
Log. sec. of the course	$49 59 10$		10.1918667
Log. of $2205'$ diff. of the latitudes			3.3434086
Log. of 3429.378 distance of Barbadoes from the Lizard			3.5352153

II. If two latitudes and the course be given, the difference of longitude is obtained with the same ease: for as the tangent of $51^{\circ} 38' 9''$ is to the tangent of the course, so is the difference of the log. tangents of the half complements of the latitudes, to the difference of longitude sought. Wherefore to the complement of the constant log. 10.1015104 , add the log. of the difference of the log. tangents of the half complements of the latitudes, and the log. tangent of the course, the sum (abating radius) will be the log. of the difference of longitude in minutes.

Example. Given the latitudes $49^{\circ} 55'$ and $13^{\circ} 10'$, and course $49^{\circ} 59' 10''$, to find the difference of longitude.

Lat. $13^{\circ} 10'$, its $\frac{1}{2}$ co lat. $38^{\circ} 25'$	1. tan. 9.8993082
Lat. $49 55$. . . $20 2\frac{1}{2}$	1. tan. 9.5620477
	diff. 3372.605 . . . its log. 3.5279654
Log. tang. of the course $49^{\circ} 59' 10''$	10.0759721
Log. of $3180' = 53^{\circ}$ for diff. of longitude	3.5024271

By this rule, having two good observations of the latitude, and the course duly steered, the reckoning of a ship's way is best ascertained, especially if you sail near the meridian.

III. If the latitude departed from, the course steered, and distance sailed, be given; to find the ship's latitude, and difference of longitude.

First, the latitude is obtained from the consideration that the distance is to the difference of latitude, as radius to the cosine of the course, which is common to plain sailing. Therefore to the log. of the distance add the log. cosine of the course, the sum (abating radius) is the log. of the difference of latitudes; which difference added to the lesser latitude, or subtracted from the greater, the sum or remainder is the present latitude: then having the two latitudes, and the course, the difference of longitude is found by the second.

Example.

OF THE TABLE FOR THE LENGTHS OF CIRCULAR ARCS.

THIS is table ~~12~~ and constitutes page 340. It contains the lengths of every single degree up to 180, and of every minute, second, and third, each up to 60. The form of it is obvious, the length of each degree, minute, second, or third, immediately following it on the same line in the next column. And the two following examples will shew the use of the table.

Ex. 1. To find the length of an arc of $57^{\circ} 17' 44'' 48'''$.

Take out from their respective columns the lengths answering to each of these numbers singly, and add them all together, thus :

57°	0.9948377
$17'$	.	.	.	.	49451
$44''$	.	.	.	.	2133
$48'''$	.	.	.	.	39

the sum or 1.0000000 is the whole length, and is equal to the radius.

Ex. 2. To find the degrees, minutes, &c. in the arc 1, which is equal to the radius.

Subtract from it the next less tabular arc, and from the remainder the next less again, and so on till nothing remain ; and opposite the several numbers subtracted, will be the degrees, minutes, &c. thus :

Given length	1.0000000
57°	0.9948377
$17'$	51623
	49451
	2172
$44''$	2133
$48'''$	39

So that the arc equal to the radius contains $57^{\circ} 17' 44'' 48'''$

OF THE TABLE FOR COMPAIRING THE COMMON AND
HYPERBOLIC LOGARITMS.

THIS is table 13, and is the upper part of page 341. It contains the hyperbolic logs. answering to the first 100 common logs. and is very useful for speedily changing the one into the other.

Ex. 1. To find the hyp. log. answering to the common log, 0.9542425.

Beginning at the left hand, and dividing the given number into periods of two figures each, including the index, take out the hyp. log. to each period, omitting 2 figures at the 2d period, four at the 3d, and 6 at the 4th; then add them all together, thus:

com. log.	hyp. log.
09 . . .	2.0723266
54 . . .	1243396
24 . . .	5526
25 . . .	58
0.9542425	2.1972246 anfw.

Ex. 2 To find the common log. answering to the hyp. log. 2.1972246.

Subtract continually each next less tabular hyp. log. from the given number, and from the remainders; and the several common logarithms answering to these tabular hyp. logs. joined together, will be the com. log. reqd. thus:

given	hyp. log.
09 . . .	2.1972246
09 . . .	2.0723226
	1248980
54 . . .	1243396
	5584
24 . . .	5526
	58
25 . . .	58
0.9542425	anfw.

The remaining pages contain the small table of the names and degrees, &c. in the points of the compass, which needs no illustration; and a copious list of such errors, with their corrections, as have been discovered in the principal books of logarithms; among which are many that have been detected by myself, both in the Avignon edition of Gardiner, and in Gardiner's own quarto edition, which renders this list more compleat than any former one, and it will be found very useful in correcting those books of tables which are already in the possession of the public. As to all the editions of Sherwin's tables in octavo, the errors in them, amounting to many thousands, are far too numerous to be printed in this work.

T A B L E I.

CONTAINING THE

LOGARITHMS

OF ALL NUMBERS,

From 1 to 100000.

(2) Numb. 1 to 100, and
their Log. with Indices.

LOGARITHMS

N. 100 L. 00

their Log. with Indices.		N.	Log.	N.	Log.	N.	Log.		
1	0.0000000	51	1.7075702	100	0.0000000	150	1.760913	200	3.010300
2	0.3010300	52	1.7160033	101	0.043214	151	1.789769	201	3.03196
3	0.4771213	53	1.7242759	102	0.086002	152	1.818436	202	3.053514
4	0.6020600	54	1.7323938	103	0.128372	153	1.846914	203	3.074960
5	0.6989700	55	1.7403627	104	0.170333	154	1.875047	204	3.096302
6	0.7781513	56	1.7481880	105	0.211893	155	1.903317	205	3.117539
7	0.8450980	57	1.7558749	106	0.253059	156	1.931246	206	3.138672
8	0.9030900	58	1.7634280	107	0.293838	157	1.958997	207	3.159703
9	0.9542425	59	1.7708520	108	0.334238	158	1.986571	208	3.180633
10	1.0000000	60	1.7781513	109	0.374265	159	2.013971	209	3.201463
11	1.0413927	61	1.7853298	110	0.413927	160	2.041200	210	3.222193
12	1.0791812	62	1.7923917	111	0.453230	161	2.068259	211	3.242825
13	1.1139434	63	1.7993405	112	0.492180	162	2.095150	212	3.263359
14	1.1461280	64	1.8061800	113	0.530784	163	2.121876	213	3.283796
15	1.1760913	65	1.8129134	114	0.569049	164	2.148438	214	3.304138
16	1.2041200	66	1.8195439	115	0.606978	165	2.174839	215	3.324385
17	1.2304489	67	1.8260748	116	0.644580	166	2.201081	216	3.344538
18	1.2552725	68	1.8325089	117	0.681859	167	2.227165	217	3.364597
19	1.2787536	69	1.8388491	118	0.718820	168	2.253093	218	3.384565
20	1.3010300	70	1.8450980	119	0.755470	169	2.278867	219	3.404441
21	1.3222193	71	1.8512583	120	0.791812	170	2.304489	220	3.424227
22	1.3424227	72	1.8573325	121	0.827854	171	2.329961	221	3.443923
23	1.3617278	73	1.8633220	122	0.863598	172	2.355284	222	3.463530
24	1.3802112	74	1.8692317	123	0.899051	173	2.380461	223	3.483049
25	1.3979400	75	1.8750613	124	0.934217	174	2.405492	224	3.502480
26	1.4149733	76	1.8808136	125	0.969100	175	2.430380	225	3.521825
27	1.4313638	77	1.8864907	126	1.003705	176	2.455127	226	3.541084
28	1.4471580	78	1.8920946	127	1.038037	177	2.479733	227	3.560259
29	1.4623980	79	1.8976271	128	1.072100	178	2.504200	228	3.579348
30	1.4771213	80	1.9030900	129	1.105897	179	2.528530	229	3.598355
31	1.4913617	81	1.9084850	130	1.139434	180	2.552725	230	3.617278
32	1.5051500	82	1.9138139	131	1.172713	181	2.576786	231	3.636120
33	1.5185139	83	1.9190781	132	1.205739	182	2.600714	232	3.654880
34	1.5314789	84	1.9242793	133	1.238516	183	2.624511	233	3.673559
35	1.5440680	85	1.9294189	134	1.271048	184	2.648178	234	3.692159
36	1.5563025	86	1.9344985	135	1.303338	185	2.671717	235	3.710679
37	1.5682017	87	1.9395193	136	1.335389	186	2.695129	236	3.729120
38	1.5797836	88	1.9444827	137	1.367206	187	2.718416	237	3.747483
39	1.5910646	89	1.9493900	138	1.398791	188	2.741578	238	3.765770
40	1.6020600	90	1.9542425	139	1.430148	189	2.764618	239	3.783979
41	1.6127839	91	1.9590414	140	1.461280	190	2.787536	240	3.802112
42	1.6232493	92	1.9637878	141	1.492191	191	2.810334	241	3.820170
43	1.6334685	93	1.9684829	142	1.522883	192	2.83312	242	3.838154
44	1.6434527	94	1.9731279	143	1.553360	193	2.855573	243	3.856063
45	1.6532125	95	1.9777236	144	1.583625	194	2.878017	244	3.873898
46	1.6627578	96	1.9822712	145	1.613680	195	2.900346	245	3.891661
47	1.6720979	97	1.9867717	146	1.643529	196	2.922561	246	3.909351
48	1.6812412	98	1.9912261	147	1.673173	197	2.944662	247	3.926970
49	1.6901961	99	1.9956352	148	1.702617	198	2.966652	248	3.944517
50	1.6989700	100	2.0000000	149	1.731863	199	2.988531	249	3.961993
N.	Log.	N.	Log.	N.	Log.	N.	Log.	N.	Log.

N. 250 L. 39.

OF NUMBERS.

(3)

N.	Log.	N.	Log.	N.	Log.	N.	Log.	N.	Log.
250	3979400	300	4771213	350	5440680	400	6020600	450	6532125
251	3996737	301	4785665	351	5453071	401	6031444	451	6541765
252	4014005	302	4800069	352	5465427	402	6042261	452	6551384
253	4031205	303	4814426	353	5477747	403	6053050	453	6560982
254	4048337	304	4828736	354	5490033	404	6063814	454	6570559
255	4065402	305	4842998	355	5502284	405	6074550	455	6580114
256	4082400	306	4857214	356	5514500	406	6085260	456	6589648
257	4099331	307	4871384	357	5526682	407	6095944	457	6599162
258	4116197	308	4885507	358	5538830	408	6106602	458	6608655
259	4132998	309	4899585	359	5550944	409	6117233	459	6618127
260	4149733	310	4913617	360	5563025	410	6127839	460	6627578
261	4166405	311	4927604	361	5575072	411	6138418	461	6637009
262	4183013	312	4941546	362	5587086	412	6148972	462	6646420
263	4199557	313	4955443	363	5599066	413	6159501	463	6655810
264	4216039	314	4969296	364	5611014	414	6170003	464	6665180
265	4232459	315	4983106	365	5622929	415	6180481	465	6674530
266	4248816	316	4996871	366	5634811	416	6190933	466	6683859
267	4265113	317	5010593	367	5646661	417	6201361	467	6693169
268	4281348	318	5024271	368	5658478	418	6211763	468	6702459
269	4297523	319	5037907	369	5670264	419	6222140	469	6711728
270	4313638	320	5051500	370	5682017	420	6232493	470	6720979
271	4329693	321	5065050	371	5693739	421	6242821	471	6730209
272	4345689	322	5078559	372	5705429	422	6253125	472	6739420
273	4361626	323	5092025	373	5717088	423	6263404	473	6748611
274	4377506	324	5105450	374	5728716	424	6273659	474	6757783
275	4393327	325	5118834	375	5740313	425	6283889	475	6766936
276	4409091	326	5132176	376	5751878	426	6294096	476	6776070
277	4424798	327	5145478	377	5763414	427	6304279	477	6785184
278	4440448	328	5158738	378	5774918	428	6314438	478	6794279
279	4456042	329	5171959	379	5786392	429	6324573	479	6803355
280	4471580	330	5185139	380	5797836	430	6334685	480	6812412
281	4487063	331	5198280	381	5809250	431	6344773	481	6821451
282	4502491	332	5211381	382	5820634	432	6354837	482	6830470
283	4517864	333	5224442	383	5831988	433	6364879	483	6839471
284	4533183	334	5237465	384	5843312	434	6374897	484	6848454
285	4548449	335	5250448	385	5854607	435	6384893	485	6857417
286	4563660	336	5263393	386	5865873	436	6394865	486	6866363
287	4578819	337	5276299	387	5877110	437	6404814	487	6875290
288	4593925	338	5289167	388	5888317	438	6414741	488	6884198
289	4608978	339	5301997	389	5899496	439	6424645	489	6893089
290	4623980	340	5314789	390	5910646	440	6434527	490	6901961
291	4638930	341	5327544	391	5921768	441	6444386	491	6910815
292	4653829	342	5340261	392	5932861	442	6454223	492	6919651
293	4668676	343	5352941	393	5943926	443	6464037	493	6928469
294	4683473	344	5365584	394	5954962	444	6473830	494	6937269
295	4698220	345	5378191	395	5965971	445	6483600	495	6946052
296	4712917	346	5390761	396	5976952	446	6493349	496	6954817
297	4727564	347	5403295	397	5987905	447	6503075	497	6963564
298	4742163	348	5415792	398	5998831	448	6512780	498	6972293
299	4756712	349	5428254	399	6009729	449	6522463	499	6981005
N.	Log.	N.	Log.	N.	Log.	N.	Log.	N.	Log.

(4)

LOGARITHMS

N. 500 L. 69

N.	Log.	N.	Log.	N.	Log.	N.	Log.	N.	Log.
500	6989700	550	7403627	600	7781513	650	8129134	700	8450989
501	6998377	551	7411516	601	7788745	651	8135810	701	8457180
502	7007037	552	7419391	602	7795965	652	8142476	702	8463371
503	7015680	553	7427251	603	7803173	653	8149132	703	8469553
504	7024305	554	7435098	604	7810369	654	8155717	704	8475727
505	7032914	555	7442930	605	7817554	655	8162413	705	8481891
506	7041505	556	7450748	606	7824726	656	8169038	706	8488047
507	7050080	557	7458552	607	7831887	657	8175654	707	8494194
508	7058637	558	7466342	608	7839036	658	8182259	708	8500333
509	7067178	559	7474118	609	7846173	659	8188854	709	8506462
510	7075702	560	7481880	610	7853298	660	8195439	710	8512583
511	7084209	561	7489629	611	7860412	661	8202015	711	8518696
512	7092700	562	7497363	612	7867514	662	8208580	712	8524800
513	7101174	563	7505084	613	7874605	663	8215135	713	8530895
514	7109631	564	7512791	614	7881684	664	8221681	714	8536982
515	7118072	565	7520484	615	7888751	665	8228216	715	8543060
516	7126497	566	7528164	616	7895807	666	8234742	716	8549130
517	7134905	567	7535831	617	7902852	667	8241258	717	8555192
518	7143298	568	7543483	618	7909885	668	8247765	718	8561244
519	7151674	569	7551123	619	7916906	669	8254261	719	8567289
520	7160033	570	7558749	620	7923917	670	8260748	720	8573325
521	7168377	571	7566361	621	7930916	671	8267225	721	8579353
522	7176705	572	7573960	622	7937904	672	8273693	722	8585372
523	7185017	573	7581546	623	7944880	673	8280151	723	8591383
524	7193313	574	7589119	624	7951846	674	8286599	724	8597386
525	7201593	575	7596678	625	7958800	675	8293038	725	8603380
526	7209857	576	7604225	626	7965743	676	8299467	726	8609366
527	7218106	577	7611758	627	7972675	677	8305887	727	8615344
528	7226339	578	7619278	628	7979596	678	8312297	728	8621314
529	7234557	579	7626786	629	7986506	679	8318698	729	8627275
530	7242759	580	7634280	630	7993405	680	8325089	730	8633229
531	7250945	581	7641761	631	8000294	681	8331471	731	8639174
532	7259116	582	7649230	632	8007171	682	8337844	732	8645111
533	7267272	583	7656686	633	8014037	683	8344207	733	8651040
534	7275413	584	7664128	634	8020893	684	8350561	734	8656961
535	7283538	585	7671559	635	8027737	685	8356906	735	8662873
536	7291648	586	7678976	636	8034571	686	8363241	736	8668778
537	7299743	587	7686381	637	8041394	687	8369567	737	8674675
538	7307823	588	7693773	638	8048207	688	8375884	738	8680564
539	7315888	589	7701153	639	8055009	689	8382192	739	8686444
540	7323938	590	7708520	640	8061800	690	8388491	740	8692317
541	7331973	591	7715875	641	8068580	691	8394780	741	8698182
542	7339993	592	7723217	642	8075350	692	8401061	742	8704039
543	7347998	593	7730547	643	8082110	693	8407332	743	8709888
544	7355989	594	7737864	644	8088859	694	8413595	744	8715729
545	7363965	595	7745170	645	8095597	695	8419848	745	8721563
546	7371926	596	7752463	646	8102325	696	8426092	746	8727388
547	7379873	597	7759743	647	8109043	697	8432328	747	8733206
548	7387806	598	7767012	648	8115750	698	8438554	748	8739016
549	7395723	599	7774268	649	8122447	699	8444772	749	8744818
N.	Log.	N.	Log.	N.	Log.	N.	Log.	N.	Log.

N.	Log.	N.	Log.	N.	Log.	N.	Log.	N.	Log.
750	8750613	800	9030900	850	9294189	900	9542425	950	9777236
751	8756399	801	9036325	851	9299296	901	9547248	951	9781805
752	8762178	802	9041744	852	9304396	902	9552065	952	9786369
753	8767950	803	9047155	853	9309490	903	9556878	953	9790929
754	8773713	804	9052560	854	9314579	904	9561684	954	9795484
755	8779470	805	9057959	855	9319661	905	9566486	955	9800034
756	8785218	806	9063350	856	9324738	906	9571282	956	9804579
757	8790959	807	9068735	857	9329808	907	9576073	957	9809119
758	8796692	808	9074114	858	9334878	908	9580858	958	9813655
759	8802418	809	9079485	859	9339932	909	9585639	959	9818186
760	8808136	810	9084850	860	9344985	910	9590414	960	9822712
761	8813847	811	9090209	861	9350032	911	9595184	961	9827234
762	8819550	812	9095560	862	9355073	912	9599948	962	9831751
763	8825245	813	9100905	863	9360108	913	9604708	963	9836263
764	8830934	814	9106244	864	9365137	914	9609462	964	9840770
765	8836614	815	9111576	865	9370161	915	9614211	965	9845273
766	8842288	816	9116902	866	9375179	916	9618955	966	9849771
767	8847954	817	9122221	867	9380191	917	9623693	967	9854265
768	8853612	818	9127533	868	9385197	918	9628427	968	9858754
769	8859263	819	9132839	869	9390198	919	9633155	969	9863238
770	8864907	820	9138139	870	9395193	920	9637878	970	9867717
771	8870544	821	9143432	871	9400182	921	9642596	971	9872192
772	8876173	822	9148718	872	9405165	922	9647309	972	9876663
773	8881795	823	9153998	873	9410142	923	9652017	973	9881128
774	8887410	824	9159272	874	9415114	924	9656720	974	9885590
775	8893017	825	9164539	875	9420081	925	9661417	975	9890046
776	8898617	826	9169800	876	9425041	926	9666110	976	9894498
777	8904210	827	9175055	877	9429996	927	9670797	977	9898946
778	8909796	828	9180303	878	9434945	928	9675480	978	9903389
779	8915375	829	9185545	879	9439889	929	9680157	979	9907827
780	8920946	830	9190781	880	9444827	930	9684829	980	9912261
781	8926510	831	9196010	881	9449759	931	9689497	981	9916690
782	8932068	832	9201233	882	9454686	932	9694159	982	9921115
783	8937618	833	9206450	883	9459607	933	9698816	983	9925535
784	8943161	834	9211661	884	9464523	934	9703469	984	9929951
785	8948697	835	9216865	885	9469433	935	9708116	985	9934362
786	8954225	836	9222063	886	9474337	936	9712758	986	9938769
787	8959747	837	9227255	887	9479236	937	9717396	987	9943172
788	8965262	838	9232440	888	9484130	938	9722028	988	9947569
789	8970770	839	9237620	889	9489018	939	9726656	989	9951963
790	8976271	840	9242793	890	9493900	940	9731279	990	9956352
791	8981765	841	9247960	891	9498777	941	9735896	991	9960737
792	8987252	842	9253121	892	9503649	942	9740509	992	9965117
793	8992732	843	9258276	893	9508515	943	9745117	993	9969492
794	8998205	844	9263424	894	9513375	944	9749720	994	9973864
795	9003671	845	9268567	895	9518230	945	9754318	995	9978231
796	9009131	846	9273704	896	9523080	946	9758911	996	9982593
797	9014583	847	9278834	897	9527924	947	9763500	997	9986952
798	9020029	848	9283959	898	9532763	948	9768083	998	9991305
799	9025468	849	9289077	899	9537597	949	9772662	999	9995655
N.	Log.	N.	Log.	N.	Log.	N.	Log.	N.	Log.

(6) LOGARITHMS N. 10000 L. 000

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
1000	0000000	0434	0869	1303	1737	2171	2605	3039	3473	3907	434	434
01	4341	4775	5208	5642	6076	6510	6943	7377	7810	8244		1 43
02	8677	9111	9544	9977	0411	0844	1277	1710	2143	2576		2 87
03	0013009	3442	3875	4308	4741	5174	5607	6039	6472	6905	433	3 130
04	7337	7770	8202	8635	9067	9499	9932	0364	0796	1228		4 174
05	0021661	2093	2525	2957	3389	3821	4253	4685	5116	5548	432	5 217
06	5980	6411	6843	7275	7706	8138	8569	9001	9432	9863		6 260
07	0030295	0726	1157	1588	2019	2451	2882	3313	3744	4174	431	7 304
08	4605	5036	5467	5898	6328	6759	7190	7620	8051	8481		8 347
09	8912	9342	9772	0203	0633	1063	1493	1924	2354	2784		9 391
1010	0043214	3644	4074	4504	4933	5363	5793	6223	6652	7082	430	1 43
11	7512	7941	8371	8800	9229	9659	0088	0517	0947	1376		2 87
12	0051805	2234	2663	3092	3521	3950	4379	4808	5237	5666	429	3 130
13	6094	6523	6952	7380	7809	8238	8666	9094	9523	9951		4 173
14	0060380	0808	1236	1664	2092	2521	2949	3377	3805	4233	428	5 217
15	4660	5088	5516	5944	6372	6799	7227	7655	8082	8510		6 260
16	8937	9365	9792	0219	0647	1074	1501	1928	2355	2782		7 304
17	0073210	3637	4064	4490	4917	5344	5771	6198	6624	7051	427	8 347
18	7478	7904	8331	8757	9184	9610	0037	0463	0889	1316		9 390
19	0081742	2168	2594	3020	3446	3872	4298	4724	5150	5576	426	1 43
1020	6002	6427	6853	7279	7704	8130	8556	8981	9407	9832		2 86
21	0090257	0683	1108	1533	1959	2384	2809	3234	3659	4084	425	3 130
22	4509	4934	5359	5784	6208	6633	7058	7483	7907	8332		4 173
23	8756	9181	9605	0030	0454	0878	1303	1727	2151	2575		5 216
24	0103000	3424	3848	4272	4696	5120	5544	5967	6391	6815	424	6 259
25	7239	7662	8086	8510	8933	9357	9780	0204	0627	1050		7 302
26	0111474	1897	2320	2743	3166	3590	4013	4436	4859	5282	423	8 346
27	5704	6127	6550	6973	7396	7818	8241	8664	9086	9509		9 389
28	9931	0354	0776	1198	1621	2043	2465	2887	3310	3732		1 43
29	0124154	4576	4998	5420	5842	6264	6685	7107	7529	7951	422	2 86
1030	8372	8794	9215	9637	0059	0480	0901	1323	1744	2165		3 129
31	0132587	3008	3429	3850	4271	4692	5113	5534	5955	6376	421	4 172
32	6797	7218	7639	8059	8480	8901	9321	9742	0162	0583		5 216
33	0141003	1424	1844	2264	2685	3105	3525	3945	4365	4785	420	6 259
34	5205	5625	6045	6465	6885	7305	7725	8144	8564	8984		7 302
35	9403	9823	0243	0662	1082	1501	1920	2340	2759	3178		8 345
36	0153598	4017	4436	4855	5274	5693	6112	6531	6950	7369	419	9 388
37	7788	8206	8625	9044	9462	9881	0300	0718	1137	1555		1 43
38	0161974	2392	2810	3229	3647	4065	4483	4901	5319	5737	418	2 86
39	6155	6573	6991	7409	7827	8245	8663	9080	9498	9916		3 129
N.	0	1	2	3	4	5	6	7	8	9	D	Pts.

PROPORTIONAL PARTS.

D	1	2	3	4	5	6	7	8	9	D	1	2	3	4	5	6	7	8	9
428	43	86	128	171	214	257	300	342	385	416	42	83	125	166	208	250	291	333	374
427	43	85	128	171	214	256	299	342	384	415	42	83	125	166	208	249	291	332	374
426	43	85	128	170	213	256	298	341	383	414	41	83	124	166	207	248	290	331	373
425	43	85	128	170	213	255	298	340	383	413	41	83	124	165	207	248	289	330	372
424	42	85	127	170	212	254	297	339	382	412	41	82	124	165	206	247	288	330	371
423	42	85	127	169	212	254	296	338	381	411	41	82	123	164	206	247	288	329	370
422	42	84	127	169	211	253	295	338	380	410	41	82	123	164	205	246	287	328	369
421	42	84	126	168	211	253	295	337	379	409	41	82	123	164	205	245	286	327	368
420	42	84	126	168	210	252	294	336	378	408	41	82	122	163	204	245	286	326	367
419	42	84	126	168	210	251	293	335	377	407	41	81	122	163	204	244	285	326	366
418	42	84	125	167	209	251	293	334	376	406	41	81	122	162	203	244	284	325	365
417	42	83	125	167	209	250	292	334	375	405	41	81	122	162	203	243	284	324	365

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
40	0170333	0751	1168	1586	2003	2421	2838	3256	3673	4090		404
41	4507	4924	5342	5759	6176	6593	7010	7427	7844	8260	417	1 40 2 81
42	8677	9094	9511	9927	0344	0761	1177	1594	2010	2427		3 121
43	0182042	3259	3676	4092	4508	4925	5341	5757	6173	6589		4 162
44	7005	7421	7837	8253	8669	9084	9500	9916	0332	0747	416	5 202
45	0191163	1578	1994	2410	2825	3240	3656	4071	4486	4902		6 242
46	5317	5732	6147	6562	6977	7392	7807	8222	8637	9052	415	7 283
47	9467	9882	0296	0711	1126	1540	1955	2369	2784	3198		8 323
48	0203613	4027	4442	4856	5270	5684	6099	6513	6927	7341		9 364
49	7755	8169	8583	8997	9411	9824	0238	0652	1066	1479	414	1 403
1050	0211893	2307	2720	3134	3547	3961	4374	4787	5201	5614		2 81
51	6027	6440	6854	7267	7680	8093	8506	8919	9332	9745	413	3 121
52	0220157	0570	0983	1396	1808	2221	2634	3046	3459	3871		4 161
53	4284	4696	5109	5521	5933	6345	6758	7170	7582	7994		5 202
54	8918	9330	9742	0154	0566	0978	1390	1802	2214	2626	412	6 242
55	32525	2935	3348	3759	4171	4582	4994	5405	5817	6228		7 282
56	6639	7050	7462	7873	8284	8695	9106	9517	9928	0339	411	8 322
57	0240750	1161	1572	1982	2393	2804	3214	3625	4036	4446		9 363
58	4857	5267	5678	6088	6498	6909	7319	7729	8139	8549	410	1 402
59	8960	9370	9780	0190	0600	1010	1419	1829	2239	2649		2 80
1060	0253059	3468	3878	4288	4697	5107	5516	5926	6335	6744		3 121
61	7154	7563	7972	8382	8791	9200	9609	0018	0427	0836		4 161
62	0261245	1654	2063	2472	2881	3289	3698	4107	4515	4924	409	5 201
63	5333	5741	6150	6558	6967	7375	7783	8192	8600	9008		6 241
64	9416	9824	0233	0641	1049	1457	1865	2273	2680	3088		7 281
65	0273496	3904	4312	4719	5127	5535	5942	6350	6757	7165	408	8 322
66	7572	7979	8387	8794	9201	9609	0016	0423	0830	1237		9 362
67	0281644	2051	2458	2865	3272	3679	4086	4492	4899	5306	407	1 401
68	5713	6119	6526	6932	7339	7745	8152	8558	8964	9371		2 80
69	9777	0183	0590	0996	1402	1808	2214	2620	3026	3432		3 120
1070	0293838	4244	4649	5055	5461	5867	6272	6678	7084	7489	406	4 160
71	7895	8300	8706	9111	9516	9922	0327	0732	1138	1543		5 200
72	0301948	2353	2758	3163	3568	3973	4378	4783	5188	5592	405	6 240
73	5997	6402	6807	7211	7616	8020	8425	8830	9234	9638		7 280
74	0310043	0447	0851	1256	1660	2064	2468	2872	3277	3681		8 320
75	4085	4489	4893	5296	5700	6104	6508	6912	7315	7719	404	9 360
76	8123	8526	8930	9333	9737	0140	0544	0947	1350	1754		1 400
77	0322157	2560	2963	3367	3770	4173	4576	4979	5382	5785	403	2 80
78	6188	6590	6993	7396	7799	8201	8604	9007	9409	9812		3 120
79	0330214	0617	1019	1422	1824	2226	2629	3031	3433	3835		4 160
80	4238	4640	5042	5444	5846	6248	6650	7052	7453	7855	402	5 200
81	8257	8659	9060	9462	9864	0265	0667	1068	1470	1871		6 240
82	0342273	2674	3075	3477	3878	4279	4680	5081	5482	5884		7 280
83	6285	6686	7087	7487	7888	8289	8690	9091	9491	9892	401	8 320
84	0350293	0693	1094	1495	1895	2296	2696	3096	3497	3897		9 360
85	4297	4698	5098	5498	5898	6298	6698	7098	7498	7898	400	1 400
86	8298	8698	9098	9498	9898	0297	0697	1097	1496	1896		2 80
87	036195	2695	3094	3494	3893	4293	4692	5091	5491	5890		3 120
88	6289	6688	7087	7486	7885	8284	8683	9082	9481	9880	399	4 160
89	0370279	0678	1076	1475	1874	2272	2671	3070	3468	3867		5 200
N.	0	1	2	3	4	5	6	7	8	9	D	Pts.

(8)

LOGARITHMS

N. 10900 L. 037

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
1090	0374265	4663	5062	5460	5858	6257	6655	7053	7451	7849	398	398
91	8248	8646	9044	9442	9839	0237	0635	1033	1431	1829		1 4
92	0382226	2624	3022	3419	3817	4214	4612	5009	5407	5804		2 9
93	6202	6599	6996	7393	7791	8188	8585	8982	9379	9770	397	3 159
94	0390173	0570	0967	1364	1761	2158	2554	2951	3348	3745		4 199
95	4141	4538	4934	5331	5727	6124	6520	6917	7313	7709		5 239
96	8106	8502	8898	9294	9690	0086	0482	0878	1274	1670	396	6 279
97	0402066	2462	2858	3254	3650	4045	4441	4837	5232	5628		7 318
98	6023	6419	6814	7210	7605	8001	8396	8791	9187	9582		8 358
99	9977	0372	0767	1162	1557	1952	2347	2742	3137	3532	395	9 397
1100	0413927	4322	4716	5111	5506	5900	6295	6690	7084	7479		1 40
01	7873	8268	8662	9056	9451	9845	0239	0633	1028	1422	394	2 79
02	0421816	2210	2604	2998	3392	3786	4180	4574	4968	5361		3 119
03	5755	6149	6543	6936	7330	7723	8117	8510	8904	9297		4 159
04	9691	0084	0477	0871	1264	1657	2050	2444	2837	3231		5 199
05	0433623	4016	4409	4802	5195	5587	5980	6373	6766	7159		6 238
06	7551	7944	8337	8729	9122	9514	9907	0299	0692	1084		7 278
07	0441476	1869	2261	2653	3045	3437	3829	4222	4614	5006	392	8 18
08	5398	5790	6181	6573	6965	7357	7749	8141	8532	8924		9 357
09	9315	9707	0099	0490	0882	1273	1664	2056	2447	2839		1 40
1110	0453230	3621	4012	4403	4795	5186	5577	5968	6359	6750	391	2 79
11	7141	7531	7922	8313	8704	9095	9485	9876	0267	0657		3 119
12	0461048	1438	1829	2219	2610	3000	3391	3781	4171	4561		4 158
13	4952	5342	5732	6122	6512	6902	7292	7682	8072	8462	390	5 198
14	8852	9242	9632	0021	0411	0801	1190	1580	1970	2359		6 238
15	0472749	3138	3528	3917	4306	4696	5085	5474	5864	6253		7 277
16	6642	7031	7420	7809	8198	8587	8976	9365	9754	0143	389	8 316
17	0480532	0921	1309	1698	2087	2475	2864	3253	3641	4030		9 356
18	4418	4806	5195	5583	5972	6360	6748	7136	7525	7913		1 39
19	8301	8689	9077	9465	9853	0241	0629	1017	1405	1792	388	2 79
1120	0492180	2568	2956	3343	3731	4119	4506	4894	5281	5669		3 119
21	6056	6444	6831	7218	7606	7993	8380	8767	9154	9541		4 158
22	9929	0316	0703	1090	1477	1863	2250	2637	3024	3411	387	5 198
23	0503798	4184	4571	4958	5344	5731	6117	6504	6890	7277		6 237
24	7663	8049	8436	8822	9208	9595	9981	0367	0753	1139		7 277
25	0511525	1911	2297	2683	3069	3455	3841	4227	4612	4998	386	8 316
26	5384	5770	6155	6541	6926	7312	7697	8083	8468	8854		9 356
27	9239	9624	0010	0395	0780	1166	1551	1936	2321	2706		1 39
28	0523091	3476	3861	4246	4631	5016	5400	5785	6170	6555	385	2 79
29	6939	7324	7709	8093	8478	8862	9247	9631	0016	0400		3 118
N.	0	1	2	3	4	5	6	7	8	9	D	315

PROPORTIONAL PARTS.

D	1	2	3	4	5	6	7	8	9	D	1	2	3	4	5	6	7	8	9	Pts.
392	39	78	118	157	196	235	274	314	353	383	38	77	115	153	192	230	268	306	345	1 39
391	39	78	117	156	195	234	273	313	352	382	38	76	114	152	191	229	267	305	344	2 79
390	39	78	117	156	195	234	273	312	351	381	38	76	114	152	191	229	267	305	343	3 118
389	39	78	117	156	195	233	272	311	350	380	38	76	114	152	190	228	266	304	342	4 157
388	39	78	116	155	194	233	272	310	349	379	38	76	114	152	190	227	265	303	341	5 197
387	39	77	116	155	194	232	271	310	348	378	38	76	113	151	189	227	265	302	340	6 236
386	39	77	116	154	193	232	270	309	347	377	38	75	113	151	189	226	264	302	339	7 275
385	39	77	116	154	193	231	270	308	347	376	38	75	113	150	188	226	263	301	338	8 314
384	38	77	115	154	192	230	269	307	346	375	38	75	113	150	188	225	263	300	338	9 354

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
1130	0530784	1169	1553	1937	2321	2706	3090	3474	3858	4242	384	374
31	4626	5010	5394	5778	6162	6546	6929	7313	7697	8081		1 37
32	8164	8848	9232	9615	9999	0382	0766	1149	1532	1916		2 75
33	0542299	2682	3066	3449	3832	4215	4598	4981	5365	5748	383	3 112
34	6131	6514	6896	7279	7662	8045	8428	8811	9193	9576		4 150
35	9959	0341	0724	1106	1489	1871	2254	2636	3019	3401		5 187
36	0553783	4166	4548	4930	5312	5694	6077	6459	6841	7223	382	6 224
37	7605	7987	8369	8750	9132	9514	9896	0278	0659	1041		7 262
38	0561423	1804	2186	2567	2949	3330	3712	4093	4475	4856		8 299
39	5237	5619	6000	6381	6762	7143	7524	7905	8287	8668		9 337
1140	9049	9429	9810	0191	0572	0953	1334	1714	2095	2476	381	373
41	0572856	3237	3618	3998	4379	4759	5140	5520	5900	6281		1 37
42	6661	7041	7422	7802	8182	8562	8942	9322	9702	0082		2 75
43	0572856	0842	1222	1602	1982	2362	2741	3121	3501	3881	380	3 112
44	369	4070	5019	5399	5778	6158	6537	6917	7296	7676		4 149
45	055	843	8813	9193	9572	9951	0330	0709	1088	1467		5 186
46	0591846	2225	2604	2983	3362	3741	4119	4498	4877	5256	379	6 223
47	5634	6013	6391	6770	7148	7527	7905	8284	8662	9041		7 260
48	9419	9797	0175	0554	0932	1310	1688	2066	2444	2822		8 298
49	0603200	3578	3957	4334	4712	5090	5468	5845	6223	6601	378	9 336
1150	6978	7356	7734	8111	8489	8866	9244	9621	9999	0376		372
51	0610753	1131	1508	1885	2262	2639	3017	3394	3771	4148		1 37
52	4525	4902	5279	5656	6032	6409	6786	7163	7540	7916	377	2 74
53	8293	8670	9046	9423	9799	0176	0552	0929	1305	1682		3 112
54	0622058	2434	2811	3187	3563	3939	4316	4692	5068	5444		4 149
55	5820	6196	6572	6948	7324	7699	8075	8451	8827	9203	376	5 186
56	9578	9954	0330	0705	1081	1456	1832	2207	2583	2958		6 223
57	0633334	3709	4084	4460	4835	5210	5585	5960	6335	6711		7 260
58	7086	7461	7836	8211	8585	8960	9335	9710	0085	0460	375	8 298
59	0640834	1209	1584	1958	2333	2708	3082	3457	3831	4205		9 335
1160	4580	4954	5329	5703	6077	6451	6826	7200	7574	7948		371
61	8322	8696	9070	9444	9818	0192	0566	0940	1314	1688		1 37
62	0652061	2435	2809	3182	3556	3930	4303	4677	5050	5424	374	2 74
63	5797	6171	6544	6917	7291	7664	8037	8410	8784	9157		3 111
64	9530	9903	0276	0649	1022	1395	1768	2141	2514	2886		4 148
65	0663259	3632	4005	4377	4750	5123	5495	5868	6241	6613	373	5 186
66	6986	7358	7730	8103	8475	8847	9220	9592	9964	0336		6 223
67	0670709	1081	1453	1825	2197	2569	2941	3313	3685	4057		7 260
68	4428	4800	5172	5544	5915	6287	6659	7030	7402	7774	372	8 298
69	8145	8517	8888	9259	9631	0002	0374	0745	1116	1487		9 334
1170	0681859	2230	2601	2972	3343	3714	4085	4456	4827	5198		370
71	5569	5940	6311	6681	7052	7423	7794	8164	8535	8906	371	1 37
72	9276	9647	0017	0388	0758	1129	1499	1869	2240	2610		2 74
73	0692980	3350	3721	4091	4461	4831	5201	5571	5941	6311		3 111
74	6681	7051	7421	7791	8160	8530	8900	9270	9639	0009	370	4 148
75	0700379	0748	1118	1487	1857	2226	2596	2965	3335	3704		5 185
76	4073	4442	4812	5181	5550	5919	6288	6658	7027	7396		6 221
77	7765	8134	8503	8871	9240	9609	9978	0347	0715	1084	369	7 258
78	0711453	1822	2190	2559	2927	3296	3664	4033	4401	4770		8 295
79	5138	5506	5875	6243	6611	6979	7348	7716	8084	8452		9 332
N.	0	1	2	3	4	5	6	7	8	9	D	Pts.

(10)

LOGARITHMS

N. 11800 L. 071

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
1180	0718820	9188	9556	9924	0292	0660	1028	1396	1763	2131	368	368
81	0722499	2867	3234	3602	3970	4337	4705	5072	5440	5807		1 37
82	6175	6542	6910	7277	7644	8011	8379	8746	9113	9480		2 74
83	9847	0215	0582	0949	1316	1683	2050	2416	2783	3150	367	3 110
84	0733517	3884	4251	4617	4984	5351	5717	6084	6450	6817		4 147
85	7184	7550	7916	8283	8649	9016	9382	9748	0114	0481	366	5 184
86	0740847	1213	1579	1945	2311	2677	3043	3409	3775	4141		6 221
87	4507	4873	5239	5605	5970	6336	6702	7068	7433	7799		7 258
88	8164	8530	8895	9261	9626	9992	0357	0723	1088	1453		8 294
89	0751819	2184	2549	2914	3279	3644	4010	4375	4740	5105	365	9 331
1190	5470	5835	6199	6564	6929	7294	7659	8024	8388	8753		1 37
91	9118	9482	9847	0211	0576	0940	1305	1669	2034	2398		2 73
92	0762763	3127	3491	3855	4220	4584	4948	5312	5676	6040	364	3 110
93	6404	0768	7132	7496	7860	8224	8588	8952	9316	9680		4 147
94	0770043	0407	0771	1134	1498	1862	2225	2589	2952	3316		5 184
95	3679	4042	4406	4769	5133	5496	5859	6222	6585	6949	363	6 220
96	7312	7675	8038	8401	8764	9127	9490	9853	0216	0579		7 257
97	0780942	1304	1667	2030	2393	2755	3118	3481	3843	4206		8 293
98	4568	4931	5293	5656	6018	6380	6743	7105	7467	7830	366	9 330
99	8192	8554	8916	9278	9640	0003	0365	0727	1089	1451		1 37
1200	0791812	2174	2536	2898	3260	3622	3983	4345	4707	5068	362	2 73
01	5430	5792	6153	6515	6876	7238	7599	7961	8322	8683		3 110
02	9045	9406	9767	0128	0490	0851	1212	1573	1934	2295		4 146
03	0802656	3017	3378	3739	4100	4461	4822	5183	5543	5904	361	5 183
04	6265	6626	6986	7347	7707	8068	8429	8789	9150	9510		6 220
05	9870	0231	0591	0952	1312	1672	2032	2393	2753	3113		7 256
06	0813473	1833	4193	4553	4913	5273	5633	5993	6353	6713	360	8 293
07	7073	7432	7792	8152	8512	8871	9231	9591	9950	0310		9 329
08	0820669	1029	1388	1748	2107	2467	2826	3185	3545	3904		1 37
09	4263	4622	4981	5341	5700	6059	6418	6777	7136	7495	359	2 73
1210	7854	8213	8571	8930	9289	9648	0007	0365	0724	1083		3 110
11	0831441	1800	2159	2517	2876	3234	3593	3951	4309	4668		4 146
12	5026	5385	5743	6101	6459	6817	7176	7534	7892	8250		5 183
13	8608	8966	9324	9682	0040	0398	0756	1114	1471	1829	358	6 219
14	0842187	2545	2902	3260	3618	3975	4333	4690	5048	5405		7 256
15	5763	6120	6478	6835	7192	7550	7907	8264	8621	8979		8 292
16	9336	9693	0050	0407	0764	1121	1478	1835	2192	2549	357	9 329
17	0852906	3263	3619	3976	4333	4690	5046	5403	5760	6116		1 36
18	6473	6829	7186	7542	7899	8255	8612	8968	9324	9681		2 73
19	0860037	0393	0750	1106	1462	1818	2174	2530	2886	3242		3 109
1220	3598	3954	4310	4666	5022	5378	5734	6089	6445	6801	356	4 145
21	7157	7512	7868	8224	8579	8935	9290	9646	0001	0357		5 182
22	0870712	1067	1423	1778	2133	2489	2844	3199	3554	3909		6 218
N.	0	1	2	3	4	5	6	7	8	9	D	363

PROPORTIONAL PARTS.

D	1	2	3	4	5	6	7	8	9	D	1	2	3	4	5	6	7	8	9
362	36	72	109	145	181	217	253	290	326	354	35	71	106	142	177	212	248	283	319
361	36	72	108	144	181	217	253	289	325	353	35	71	106	141	177	212	247	282	318
360	36	72	108	144	180	216	252	288	324	352	35	70	106	141	176	211	246	282	317
359	36	72	108	144	180	215	251	287	323	351	35	70	105	140	176	211	246	281	316
358	36	72	107	143	179	215	251	286	322	350	35	70	105	140	175	210	245	280	315
357	36	71	107	143	179	214	250	286	321	349	35	70	105	140	175	209	244	279	314
356	36	71	107	142	178	214	249	285	320	348	35	70	104	139	174	209	244	278	313
355	36	71	107	142	178	213	249	284	320	347	35	69	104	139	174	208	243	278	312

Pts.

N. 12230 L. 087

OF NUMBERS.

(11)

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
1223	0874265	4620	4975	5330	5685	6040	6395	6750	7104	7459	355	346
24	7814	8169	8524	8878	9233	9588	9943	0297	0652	1006		1 35
25	0881361	1715	2070	2424	2779	3133	3488	3842	4196	4550		2 69
26	4905	5259	5613	5967	6321	6676	7030	7384	7738	8092	354	3 104
27	8446	8800	9153	9507	9861	0215	0569	0923	1276	1630		4 138
28	0891984	2337	2691	3045	3398	3752	4105	4459	4812	5165		5 173
29	5519	5872	6226	6579	6932	7285	7639	7992	8345	8698		6 208
1230	9051	9404	9757	0110	0463	0816	1169	1522	1875	2228	353	7 242
31	0902581	2933	3286	3639	3991	4344	4697	5049	5402	5755		8 277
32	6107	6460	6812	7164	7517	7869	8222	8574	8926	9279		9 311
33	9631	9983	0335	0687	1039	1392	1744	2096	2448	2800		345
34	0913152	3504	3855	4207	4559	4911	5263	5614	5966	6318	352	1 35
35	6670	7021	7373	7724	8076	8427	8779	9130	9482	9833		2 69
36	0913152	0536	0887	1239	1590	1941	2292	2644	2995	3346		3 104
37	3697	4048	4399	4750	5101	5452	5803	6154	6505	6856	351	4 138
38	7206	7557	7908	8259	8609	8960	9311	9661	0012	0363		5 173
39	0930713	1061	1414	1764	2115	2465	2816	3166	3516	3867		6 207
1240	4217	4567	4917	5267	5618	5968	6318	6668	7018	7368	350	7 242
41	7718	8068	8418	8768	9117	9467	9817	0167	0517	0866		8 276
42	0941216	1566	1915	2265	2614	2964	3313	3663	4012	4362		9 311
43	4711	5061	5410	5759	6109	6458	6807	7156	7506	7855		344
44	8204	8553	8902	9251	9600	9949	0298	0647	0996	1345	349	1 34
45	0951694	2042	2391	2740	3089	3437	3786	4135	4483	4832		2 69
46	5180	5529	5877	6226	6574	6923	7271	7620	7968	8316		3 103
47	8665	9013	9361	9709	0057	0406	0754	1102	1450	1798		4 138
48	0962146	2494	2842	3190	3538	3885	4233	4581	4929	5277	348	5 172
49	5624	5972	6320	6667	7015	7363	7710	8058	8405	8753		6 206
1250	9100	9448	9795	0142	0490	0837	1184	1531	1879	2226		7 241
51	0972573	2920	3267	3614	3962	4309	4656	5003	5349	5696	347	8 275
52	6043	6390	6737	7084	7431	7777	8124	8471	8817	9164		9 310
53	9511	9857	0204	0550	0897	1243	1590	1936	2283	2629		343
54	0982975	3322	3668	4014	4360	4707	5053	5399	5745	6091		1 34
55	6437	6783	7129	7475	7821	8167	8513	8859	9205	9551	346	2 69
56	9896	0242	0588	0934	1279	1625	1971	2316	2662	3007		3 103
57	0993353	3698	4044	4389	4735	5080	5425	5771	6116	6461		4 137
58	6806	7152	7497	7842	8187	8532	8877	9222	9567	9912		5 172
59	1000257	0602	0947	1292	1637	1982	2327	2671	3016	3361	345	6 206
1260	3705	4050	4395	4739	5084	5429	5773	6118	6462	6806		7 240
61	7151	7495	7840	8184	8528	8873	9217	9561	9905	0249		8 274
62	1010594	0938	1282	1626	1970	2314	2658	3002	3346	3690	344	9 309
63	4034	4377	4721	5065	5409	5752	6096	6440	6784	7127		342
64	7471	7814	8158	8501	8845	9188	9532	9875	0219	0562		1 34
65	1020905	1249	1592	1935	2278	2621	2965	3308	3651	3994		2 68
66	4337	4680	5023	5366	5709	6052	6395	6738	7081	7423	343	3 102
67	7766	8109	8452	8794	9137	9480	9822	0165	0507	0850		4 136
68	1031193	1535	1877	2220	2562	2905	3247	3589	3932	4274		5 171
69	4618	4958	5301	5643	5985	6327	6669	7011	7353	7695	342	6 205
1270	8037	8379	8721	9063	9405	9747	0089	0430	0772	1114		7 239
71	1041456	1797	2139	2480	2822	3164	3505	3847	4188	4530		8 273
72	4871	5213	5554	5895	6237	6578	6919	7260	7602	7943	341	9 307
N.	0	1	2	3	4	5	6	7	8	9	D	Pts.

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
1273	1048284	8625	8966	9307	9648	9989	0331	0671	1012	1353		340
74	1051694	2035	2376	2717	3058	3398	3739	4080	4421	4761		1 34
75	5102	5442	5783	6124	6464	6805	7145	7486	7826	8166		2 68
76	8507	8847	9187	9528	9868	0208	0548	0889	1229	1569	340	3 102
77	1061909	2249	2589	2929	3269	3609	3949	4289	4629	4969		4 136
78	5309	5648	5988	6328	6668	7007	7347	7687	8026	8366		5 170
79	8705	9045	9385	9724	0063	0403	0742	1082	1421	1760		6 204
1280	1072100	2439	2778	3117	3457	3796	4135	4474	4813	5152		7 238
81	5491	5830	6169	6508	6847	7186	7525	7864	8203	8541	339	8 272
82	8880	9219	9558	9896	0235	0574	0912	1251	1590	1928		9 306
83	1082267	2605	2944	3282	3620	3959	4297	4635	4974	5312		339
84	5650	5988	6327	6665	7003	7341	7679	8017	8355	8693	338	1 34
85	9031	9369	9707	0045	0383	0721	1059	1396	1734	2072		2 68
86	1092410	2747	3085	3423	3760	4098	4435	4773	5111	5448		3 102
87	5785	6123	6460	6798	7135	7472	7810	8147	8484	8821		4 136
88	9159	9496	9833	0170	0507	0844	1181	1518	1855	2192	337	5 170
89	1102529	2866	3203	3540	3877	4213	4550	4887	5224	5560		6 204
1290	5897	6234	6570	6907	7244	7580	7917	8253	8590	8926		7 238
91	9262	9599	9935	0272	0608	0944	1280	1617	1953	2289	336	8 272
92	1112625	2961	3297	3633	3969	4306	4642	4977	5313	5649		9 306
93	5985	6321	6657	6993	7329	7664	8000	8336	8671	9007		338
94	9343	9678	0014	0350	0685	1021	1356	1691	2027	2362		1 34
95	1122698	3033	3368	3704	4039	4374	4709	5045	5380	5715		2 68
96	6050	6385	6720	7055	7390	7725	8060	8395	8730	9065	335	3 102
97	9400	9735	0069	0404	0739	1074	1408	1743	2078	2412		4 136
98	1132747	3081	3416	3751	4085	4420	4754	5088	5423	5757		5 170
99	6092	6426	6760	7094	7429	7763	8097	8431	8765	9099	334	6 204
1300	9434	9768	0102	0436	0770	1104	1437	1771	2105	2439		7 238
01	1142773	3107	3441	3774	4108	4442	4775	5109	5443	5776		8 272
02	6110	6443	6777	7110	7444	7777	8111	8444	8777	9111		9 306
03	9444	9777	0111	0444	0777	1110	1444	1777	2110	2443	333	1 34
04	1152776	3109	3442	3775	4108	4441	4774	5107	5439	5772		2 68
05	6105	6438	6771	7103	7436	7769	8101	8434	8767	9099		3 102
06	9432	9764	0097	0429	0762	1094	1427	1759	2091	2424		4 136
07	1162756	3088	3420	3753	4085	4417	4749	5081	5413	5745		5 170
08	6077	6409	6741	7073	7405	7737	8069	8401	8733	9065	332	6 204
09	9396	9728	0060	0392	0723	1055	1387	1718	2050	2381		7 238
1310	1172713	3044	3376	3707	4039	4370	4702	5033	5364	5696		8 272
11	6027	6358	6689	7021	7352	7683	8014	8345	8676	9007	331	9 306
12	9338	9669	0000	0331	0662	0993	1324	1655	1986	2316		1 34
13	1182647	2978	3309	3639	3970	4301	4631	4962	5293	5623		2 68
14	5954	6284	6615	6945	7276	7606	7936	8267	8597	8927		3 102
15	9258	9588	9918	0248	0578	0909	1239	1569	1899	2229	330	4 136
16	1192559	2889	3219	3549	3879	4209	4539	4868	5198	5528		5 170
17	5858	6187	6517	6847	7177	7506	7836	8165	8495	8825		6 204

N.	0	1	2	3	4	5	6	7	8	9	D
PROPORTIONAL PARTS.											
334	33	67	100	134	167	200	234	267	301	334	33
333	33	67	100	133	167	200	233	266	300	333	33
332	33	66	100	133	166	199	232	266	299	332	33
331	33	66	99	132	166	199	232	265	298	331	33
330	33	66	99	132	165	198	231	264	297	330	33
329	33	66	99	132	165	197	230	263	296	329	33
328	33	66	98	131	164	197	230	262	295	328	33
327	33	65	98	131	164	196	229	261	294	327	33
326	33	65	98	130	163	196	228	260	293	326	33
325	33	65	98	130	163	195	228	259	292	325	33
324	33	65	97	130	162	194	227	258	291	324	33
323	33	65	97	129	162	194	226	258	291	323	33

Pts.

N. 13180 L. 119 OF NUMBERS. (13)

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
1318	1199154	9481	9813	0143	0472	0801	1131	1460	1789	2119		322
19	1202448	2777	3106	3436	3765	4094	4423	4752	5081	5410		1 32
1320	5739	6068	6397	6726	7055	7384	7713	8042	8371	8699	329	2 64
21	9028	9357	9686	0014	0343	0672	1000	1329	1657	1986		3 97
22	1212315	2643	2972	3300	3628	3957	4285	4614	4942	5270		4 129
23	5598	5927	6255	6583	6911	7239	7568	7896	8224	8552		5 161
24	8880	9208	9536	9864	0192	0520	0848	1175	1503	1831	328	6 193
25	1222159	2487	2814	3142	3470	3797	4125	4453	4780	5108		7 225
26	5435	5763	6090	6418	6745	7073	7400	7727	8055	8382		8 258
27	8709	9036	9364	9691	0018	0345	0672	1000	1327	1654	327	9 290
28	1231981	2308	2635	2962	3289	3616	3942	4269	4596	4923		1 32
29	5250	5577	5903	6230	6557	6883	7210	7537	7863	8190		2 64
1230	8516	8843	9169	9496	9822	0149	0475	0802	1128	1454		3 96
31	1241781	2107	2433	2759	3086	3412	3738	4064	4390	4716	326	4 128
32	5042	5368	5694	6020	6346	6672	6998	7324	7650	7976		5 161
33	8201	8528	8853	9179	9505	9830	0256	0582	0907	1233		6 193
34	1251558	1884	2209	2535	2860	3186	3511	3837	4162	4487		7 225
35	4813	5138	5463	5788	6114	6439	6764	7089	7414	7739	325	8 257
36	8065	8390	8715	9040	9365	9690	0015	0339	0664	0989		9 289
37	1261314	1639	1964	2288	2613	2938	3263	3587	3912	4237		1 32
38	4561	4886	5210	5535	5859	6184	6508	6833	7157	7481		2 64
39	7806	8130	8454	8779	9103	9427	9751	0076	0400	0724	324	3 96
1340	1271048	1372	1696	2020	2344	2668	2992	3316	3640	3964		4 128
41	4288	4612	4935	5259	5583	5907	6230	6554	6878	7202		5 160
42	7525	7849	8172	8496	8819	9143	9466	9790	0113	0437		6 192
43	1280760	1083	1407	1730	2053	2377	2700	3023	3346	3670		7 224
44	3997	4316	4639	4962	5285	5608	5931	6254	6577	6900	323	8 256
45	7223	7546	7869	8191	8514	8837	9160	9483	9805	0128		9 288
46	1290451	0773	1096	1418	1741	2064	2386	2709	3031	3354		1 32
47	3676	3998	4321	4643	4965	5288	5610	5932	6255	6577		2 64
48	6899	7221	7543	7865	8187	8510	8832	9154	9476	9798	322	3 96
49	1300119	0441	0763	1085	1407	1729	2051	2372	2694	3016		4 128
1350	3338	3659	3981	4303	4624	4946	5267	5589	5911	6232		5 160
51	6553	6875	7196	7518	7839	8161	8482	8803	9124	9446		6 192
52	9767	0088	0409	0730	1052	1373	1694	2015	2336	2657	321	7 224
53	1312978	3299	3620	3941	4262	4583	4903	5224	5545	5866		8 256
54	6187	6507	6828	7149	7469	7790	8111	8431	8752	9072		9 287
55	9393	9713	0034	0354	0675	0995	1316	1636	1956	2277		1 32
56	1322597	2917	3237	3558	3878	4198	4518	4838	5158	5478		2 64
57	5798	6119	6439	6758	7078	7398	7718	8038	8358	8678	320	3 95
58	8998	9317	9637	9957	0277	0596	0916	1236	1555	1875		4 127
59	1332195	2514	2834	3153	3473	3792	4112	4431	4750	5070		5 159
1360	5389	5708	6028	6347	6666	6985	7305	7624	7943	8262	319	6 190
61	8581	8900	9219	9538	9857	0176	0495	0814	1133	1452		7 222
62	1341771	2090	2409	2728	3046	3365	3684	4003	4321	4640		8 254
63	4959	5277	5596	5914	6233	6551	6870	7188	7507	7825		9 285
64	8147	8462	8780	9099	9417	9735	0054	0372	0690	1008	318	1 32
65	1351327	1645	1963	2281	2599	2917	3235	3553	3871	4189		2 63
66	4507	4825	5143	5461	5779	6096	6414	6732	7050	7367		3 95
67	7685	8003	8320	8638	8956	9273	9591	9908	0226	0543	317	4 127
N.	0	1	2	3	4	5	6	7	8	9	D	Pts.

(14)

LOGARITHMS

N. 13680 L. 136

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
1368	1360861	1178	1496	1813	2131	2448	2765	3083	3400	3717		316
69	4034	4352	4669	4986	5303	5620	5937	6255	6572	6889		1 31
1370	7206	7523	7840	8157	8473	8790	9107	9424	9741	0058		2 63
71	1370375	0691	1008	1325	1641	1958	2275	2591	2908	3225		3 95
72	3541	3858	4174	4491	4807	5124	5440	5756	6073	6389		4 126
73	6705	7022	7338	7654	7970	8287	8603	8919	9235	9551	316	5 158
74	9867	0183	0499	0815	1131	1447	1763	2079	2395	2711		6 190
75	1383027	3343	3659	3974	4290	4606	4922	5237	5553	5869		7 221
76	6184	6500	6816	7131	7447	7762	8078	8393	8709	9024		8 253
77	9339	9655	9970	0285	0601	0916	1231	1547	1862	2177		9 284
78	1392492	2807	3122	3438	3753	4068	4383	4698	5013	5328	315	1 32
79	5643	5958	6272	6587	6902	7217	7532	7847	8161	8476		2 63
1380	8791	9106	9420	9735	0050	0364	0679	0993	1308	1622		3 95
81	1401937	2251	2566	2880	3195	3509	3823	4138	4452	4766		4 126
82	5080	5395	5709	6023	6337	6651	6966	7280	7594	7908		5 158
83	8222	8536	8850	9164	9478	9792	0106	0419	0733	1047		6 190
84	1411361	1675	1988	2302	2616	2930	3243	3557	3871	4184	314	7 221
85	4498	4811	5125	5438	5752	6065	6379	6692	7006	7319		8 252
86	7632	7946	8259	8572	8885	9199	9512	9825	0138	0451		9 284
87	1420765	1078	1391	1704	2017	2330	2643	2956	3269	3582	313	1 31
88	3895	4208	4520	4833	5146	5459	5772	6084	6397	6710		2 63
89	7022	7335	7648	7960	8273	8586	8898	9211	9523	9836		3 94
1390	1430148	0460	0773	1085	1398	1710	2022	2335	2647	2959		4 126
91	3271	3584	3896	4208	4520	4832	5144	5456	5768	6080		5 157
92	6392	6704	7016	7328	7640	7952	8264	8576	8888	9199	312	6 188
93	9511	9823	0135	0446	0758	1070	1381	1693	2005	2316		7 220
94	1442628	2939	3251	3562	3874	4185	4497	4808	5119	5431	313	8 251
95	5742	6053	6365	6676	6987	7298	7610	7921	8232	8543		9 283
96	8854	9165	9476	9787	0098	0409	0720	1031	1342	1653	311	1 31
97	1451964	2275	2586	2897	3207	3518	3829	4140	4450	4761		2 63
98	5072	5382	5693	6004	6314	6625	6935	7246	7556	7867		3 94
99	8177	8488	8798	9108	9419	9729	0039	0350	0660	0970		4 125
1400	1461280	1591	1901	2211	2521	2831	3141	3451	3761	4071	310	5 156
01	4381	4691	5001	5311	5621	5931	6241	6551	6861	7170		6 187
02	7480	7790	8100	8409	8719	9029	9338	9648	9958	0267		7 218
03	1470577	0886	1196	1505	1815	2124	2434	2743	3052	3362		8 249
04	3671	3980	4290	4599	4908	5217	5527	5836	6145	6454	309	9 280
05	6763	7072	7381	7690	7999	8308	8617	8926	9235	9544		1 31
06	9853	0162	0471	0780	1089	1397	1706	2015	2324	2632		2 62
07	1482941	3250	3558	3867	4175	4484	4793	5101	5410	5718		3 93
08	6027	6335	6643	6952	7260	7569	7877	8185	8493	8802		4 124
09	9110	9418	9726	0035	0343	0651	0959	1267	1575	1883		5 155
1410	1492191	2499	2807	3115	3423	3731	4039	4347	4655	4962	308	6 186
11	5270	5578	5886	6193	6501	6809	7116	7424	7732	8039		7 217
12	8347	8655	8962	9270	9577	9885	0192	0499	0807	1114		8 248
N.	0	1	2	3	4	5	6	7	8	9	D	Pts.

PROPORTIONAL PARTS.

D	1	2	3	4	5	6	7	8	9	D	1	2	3	4	5	6	7	8	9
310	31	62	93	124	155	186	217	248	279	306	31	61	92	122	153	184	214	245	275
309	31	62	93	124	155	185	216	247	278	305	31	61	92	122	153	183	214	244	275
308	31	62	92	123	154	185	216	246	277	304	30	61	91	122	152	182	213	243	274
307	31	61	92	123	154	184	215	246	276	303	30	61	91	121	152	182	212	242	273

O L. 150 OF NUMBERS.										(15)	
O	1	2	3	4	5	6	7	8	9	D	Pro.
1422	1729	2036	2344	2651	2958	3265	3573	3880	4187		302
4494	4801	5108	5415	5722	6030	6337	6644	6951	7257	307	1 30 2 60
7564	7871	8178	8485	8792	9099	9406	9712	0019	0326		3 91
0633	0939	1246	1553	1859	2166	2472	2779	3085	3392		4 121
3699	4005	4311	4618	4924	5231	5537	5843	6150	6456		5 151
6762	7069	7375	7681	7987	8293	8600	8906	9212	9518	306	6 181
9824	0130	0436	0742	1048	1354	1660	1966	2272	2578		7 211
											8 242
											9 272
2883	3189	3495	3801	4107	4412	4718	5024	5329	5635		301
5941	6246	6552	6858	7163	7469	7774	8080	8385	8691		1 30
8996	9301	9607	9912	0217	0523	0828	1133	1439	1744		2 60
2049	2354	2659	2964	3270	3575	3880	4185	4490	4795	305	3 90
5100	5405	5710	6015	6320	6625	6929	7234	7539	7844		4 120
											5 151
											6 181
8149	8453	8758	9063	9368	9672	9977	0281	0586	0891		7 211
1195	1500	1804	2109	2413	2718	3022	3327	3631	3935		8 241
4249	4544	4848	5153	5457	5761	6065	6370	6674	6978	304	9 271
7282	7586	7890	8194	8498	8802	9106	9410	9714	0018		300
0322	0626	0930	1234	1538	1842	2145	2449	2753	3057		1 30
											2 60
											3 90
3360	3664	3968	4271	4575	4879	5182	5486	5789	6093		4 120
6396	6700	7003	7307	7610	7914	8217	8520	8824	9127		5 150
9430	9733	0037	0340	0643	0946	1249	1553	1856	2159	303	6 180
2462	2765	3068	3371	3674	3977	4280	4583	4886	5189		7 210
5492	5794	6097	6400	6703	7006	7308	7611	7914	8216		8 240
											9 270
8519	8822	9124	9427	9729	0032	0334	0637	0939	1242		299
1544	1847	2149	2452	2754	3056	3359	3661	3963	4265		1 30
4568	4870	5172	5474	5776	6079	6381	6683	6985	7287	302	2 60
7589	7891	8193	8495	8797	9099	9401	9702	0004	0306		3 90
0511	0812	1112	1413	1715	2017	2318	2620	2922	3223		4 120
											5 150
											6 179
3625	3927	4228	4530	4831	5133	5434	5736	6037	6338		7 209
6640	6941	7243	7544	7845	8146	8448	8749	9050	9351	301	8 239
9653	9954	0255	0556	0857	1158	1459	1760	2061	2362		9 269
2663	2964	3265	3566	3867	4168	4469	4770	5070	5371		298
5672	5973	6273	6574	6875	7175	7476	7777	8077	8378		1 30
											2 60
											3 90
8678	8979	9280	9580	9881	0181	0481	0782	1082	1383		4 119
1683	1983	2284	2584	2884	3184	3485	3785	4085	4385		5 149
4685	4985	5286	5586	5886	6186	6486	6786	7086	7386	300	6 179
7686	7986	8285	8585	8885	9185	9485	9785	0084	0384		7 209
0684	0984	1283	1583	1883	2182	2482	2781	3081	3380		8 239
											9 269
3680	3980	4279	4578	4878	5177	5477	5776	6075	6375		297
6674	6973	7273	7572	7871	8170	8470	8769	9068	9367		1 30
9666	9965	0264	0563	0862	1161	1460	1759	2058	2357	299	2 59
2656	2955	3254	3553	3852	4150	4449	4748	5047	5345		3 89
5644	5943	6241	6540	6839	7137	7436	7734	8033	8331		4 119
											5 149
											6 179
8630	8928	9227	9525	9824	0122	0420	0719	1017	1315		7 209
1614	1912	2210	2508	2807	3105	3403	3701	3999	4297		8 238
4596	4894	5192	5490	5788	6086	6384	6682	6979	7277	298	9 267
7575	7873	8171	8469	8767	9064	9362	9660	9958	0255		
0553	0851	1148	1446	1743	2041	2339	2636	2934	3231		
3529	3826	4123	4421	4718	5016	5313	5610	5908	6205		
6502	6799	7097	7394	7691	7988	8285	8582	8880	9177	297	
9474	9771	0068	0365	0662	0959	1256	1553	1850	2146		
O	1	2	3	4	5	6	7	8	9	D	Pts.

(16)

LOGARITHMS

N. 14630 L. 165

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
1463	1652443	2740	3037	3334	3631	3927	4224	4521	4817	5114		290
64	5411	5707	6004	6301	6597	6894	7190	7487	7783	8080		1 30
65	8376	8673	8969	9265	9562	9858	0155	0451	0747	1043		2 59
66	1661340	1636	1932	2228	2525	2821	3117	3413	3709	4005		3 89
67	4301	4597	4893	5189	5485	5781	6077	6373	6669	6965	296	4 118
68	7261	7556	7852	8148	8444	8740	9035	9331	9627	9922		5 248
69	1670218	0514	0809	1105	1400	1696	1991	2287	2582	2878		6 178
1470	3173	3469	3764	4060	4355	4650	4946	5241	5536	5831		7 207
71	6127	6422	6717	7012	7308	7603	7898	8193	8488	8783		8 237
72	9078	9373	9668	9963	0258	0553	0848	1143	1438	1733	295	9 266
73	1682027	2322	2617	2912	3207	3501	3796	4091	4386	4680		1 30
74	4975	5269	5564	5859	6153	6448	6742	7037	7331	7626		2 59
75	7920	8215	8509	8803	9098	9392	9685	9981	0275	0569		3 89
76	1690864	1158	1452	1746	2040	2335	2629	2923	3217	3511		4 118
77	3805	4099	4393	4687	4981	5275	5569	5863	6157	6450	294	5 148
78	6744	7038	7332	7626	7920	8213	8507	8801	9094	9388		6 178
79	9682	9975	0269	0563	0856	1150	1443	1737	2030	2324		7 207
1480	1702617	2911	3204	3497	3791	4084	4377	4671	4964	5257		8 236
81	5551	5844	6137	6430	6723	7017	7310	7603	7896	8189		9 266
82	8482	8775	9068	9361	9654	9947	0240	0533	0826	1119	293	1 29
83	1711412	1704	1997	2290	2583	2876	3168	3461	3754	4046		2 59
84	4339	4632	4924	5217	5509	5802	6095	6387	6680	6972		3 88
85	7265	7557	7849	8142	8434	8727	9019	9311	9604	9896		4 118
86	1720188	0480	0773	1065	1357	1649	1941	2233	2526	2818		5 147
87	3110	3402	3694	3986	4278	4570	4862	5154	5446	5737	292	6 176
88	6029	6321	6613	6905	7197	7488	7780	8072	8364	8655		7 205
89	8947	9239	9530	9822	0113	0405	0697	0988	1280	1571		8 234
1490	1731863	2154	2446	2737	3028	3320	3611	3902	4194	4485		9 264
91	4776	5068	5359	5650	5941	6233	6524	6815	7106	7397		1 29
92	7688	7979	8270	8561	8852	9143	9434	9725	0016	0307	291	2 58
93	1740598	0889	1180	1471	1761	2052	2343	2634	2925	3215		3 88
94	3506	3797	4087	4378	4669	4959	5250	5540	5831	6121		4 117
95	6412	6702	6993	7283	7574	7864	8155	8445	8735	9026		5 146
96	9316	9606	9897	0187	0477	0767	1057	1348	1638	1928		6 175
97	1752218	2508	2798	3088	3378	3668	3958	4248	4538	4828	290	7 204
98	5118	5408	5698	5988	6278	6567	6857	7147	7437	7727		8 233
99	8016	8306	8596	8885	9175	9465	9754	0044	0333	0623		9 263
1500	1760913	1202	1492	1781	2071	2360	2649	2939	3228	3518		1 29
01	3807	4096	4386	4675	4964	5253	5543	5832	6121	6410		2 58
02	6699	6988	7278	7567	7856	8145	8434	8723	9012	9301	289	3 87
03	9590	9879	0168	0457	0745	1034	1323	1612	1901	2190		4 116
04	1772478	2767	3056	3345	3633	3922	4211	4499	4788	5076		5 145
05	5365	5654	5942	6231	6519	6808	7096	7385	7673	7961		6 174
06	8250	8538	8826	9115	9403	9691	9980	0268	0556	0844		7 203
07	1781133	1421	1709	1997	2285	2573	2861	3149	3437	3725	288	8 232
N.	0	1	2	3	4	5	6	7	8	9	D	Pro.

PROPORTIONAL PARTS.

D	1	2	3	4	5	6	7	8	9	D	1	2	3	4	5	6	7	8	9
290	29	58	87	116	145	174	203	232	261	287	29	57	86	115	144	172	201	230	258
289	29	58	87	116	145	173	202	231	260	286	29	57	86	114	143	172	200	229	257
288	29	58	86	115	144	173	202	230	259	285	29	57	86	114	143	171	200	228	257

Pts.

N. 15080 L. 178

OF NUMBERS.

(17)

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
1508	1784013	4301	4589	4877	5165	5453	5741	6029	6317	6605		284
09	6892	7180	7468	7756	8043	8331	8619	8907	9194	9482		1 28
1510	9769	0057	0345	0632	0920	1207	1495	1782	2070	2357		2 57
11	1792645	2932	3219	3507	3794	4082	4369	4656	4943	5231		3 85
12	5518	5805	6092	6380	6667	6954	7241	7528	7815	8102		4 114
13	8389	8676	8963	9250	9537	9824	0111	0398	0685	0972	287	5 142
14	1801259	1546	1832	2119	2406	2693	2980	3266	3553	3840		6 170
15	4126	4413	4700	4986	5273	5559	5846	6133	6419	6706		7 199
16	6992	7278	7565	7851	8138	8424	8711	8997	9283	9570		8 227
17	9856	0142	0428	0715	1001	1287	1573	1859	2145	2432		9 256
18	812718	3004	3290	3576	3862	4148	4434	4720	5006	5292	286	1 28
19	5578	5864	6150	6435	6721	7007	7293	7579	7864	8150		2 57
1520	8436	8722	9007	9293	9579	9864	0150	0435	0721	1007		3 85
21	1821292	1578	1863	2149	2434	2720	3005	3290	3576	3861		4 113
22	4147	4432	4717	5002	5288	5573	5858	6143	6429	6714		5 142
23	9899	7284	7569	7854	8140	8425	8710	8995	9280	9565		6 170
24	9850	0135	0420	0704	0989	1274	1559	1844	2129	2414	285	7 198
25	1832698	2983	3268	3553	3837	4122	4407	4691	4976	5261		8 226
26	5545	5830	6114	6399	6684	6968	7253	7537	7822	8106		9 255
27	8390	8675	8959	9244	9528	9812	0096	0381	0665	0949		1 28
28	1841234	1518	1802	2086	2370	2654	2939	3223	3507	3791	284	2 56
29	4075	4359	4643	4927	5211	5495	5779	6063	6347	6630		3 85
1530	6914	7198	7482	7766	8050	8333	8617	8901	9185	9468		4 113
31	9752	0036	0319	0603	0886	1170	1454	1737	2021	2304		5 142
32	1852588	2871	3155	3438	3721	4005	4288	4572	4855	5138		6 170
33	5422	5705	5988	6271	6555	6838	7121	7404	7687	7970		7 198
34	18535820	5988	6271	6555	6838	7121	7404	7687	7970	8253	283	8 226
35	1861684	1367	1650	1932	2215	2498	2781	3064	3347	3629		9 254
36	3912	4195	4478	4760	5043	5326	5608	5891	6174	6456		1 28
37	6739	7021	7304	7586	7869	8151	8434	8716	8999	9281		2 56
38	9563	9846	0128	0410	0693	0975	1257	1540	1822	2104		3 84
39	1872386	2668	2951	3233	3515	3797	4079	4361	4643	4925	282	4 112
1540	5207	5489	5771	6053	6335	6617	6899	7181	7463	7745		5 140
41	8026	8308	8590	8872	9154	9435	9717	9999	0280	0562		6 168
42	1880844	1125	1407	1689	1970	2252	2533	2815	3096	3378		7 196
43	3659	3941	4222	4504	4785	5066	5348	5629	5910	6192		8 224
44	6473	6754	7035	7317	7598	7879	8160	8441	8723	9004	281	9 252
45	9285	9566	9847	0128	0409	0690	0971	1252	1533	1814		1 28
46	1892095	2376	2657	2938	3218	3499	3780	4061	4342	4622		2 56
47	4903	5184	5465	5745	6026	6307	6587	6868	7148	7429		3 84
48	7710	7990	8271	8551	8832	9112	9393	9673	9953	0234		4 112
49	1900514	0795	1075	1355	1636	1916	2196	2476	2757	3037	280	5 140
1550	3317	3597	3877	4157	4438	4718	4998	5278	5558	5838		6 167
51	6118	6398	6678	6958	7238	7518	7798	8078	8357	8637		7 195
52	8917	9197	9477	9757	0036	0316	0596	0876	1155	1435		8 223
53	1911715	1994	2274	2553	2833	3113	3392	3672	3951	4231		9 251
54	4510	4790	5069	5348	5628	5907	6187	6466	6745	7025		1 28
55	7304	7583	7862	8142	8421	8700	8979	9259	9538	9817		2 56
56	1920096	0375	0654	0933	1212	1491	1770	2049	2328	2607	279	3 84
57	2886	3165	3444	3723	4002	4281	4559	4838	5117	5396		4 112
N.	0	1	2	3	4	5	6	7	8	9	D	Pts.

(18)

LOGARITHMS

N. 15580 L. 192

N.	0	1	2	3	4	5	6	7	8	9	P.	o.
1558	1925675	5953	6232	6511	6789	7068	7347	7625	7904	8183		278
59	8461	8740	9018	9297	9575	9854	0132	0411	0689	0968	1	28
1560	1931246	1524	1803	2081	2359	2638	2916	3194	3473	3751	2	56
61	4029	4307	4585	4864	5142	5420	5698	5976	6254	6532	3	83
62	6810	7088	7366	7644	7922	8200	8478	8756	9034	9312	4	111
63	9590	9868	0145	0423	0701	0979	1257	1534	1812	2090	5	132
64	1942367	2645	2923	3200	3478	3756	4033	4311	4588	4866	6	167
65	5143	5421	5698	5976	6253	6531	6808	7086	7363	7640	7	195
66	7918	8195	8472	8749	9027	9304	9581	9858	0136	0413	8	222
67	1950690	0967	1244	1521	1798	2075	2353	2630	2907	3184	9	250
68	3461	3738	4014	4291	4568	4845	5122	5399	5676	5953		277
69	6229	6506	6783	7060	7336	7613	7890	8167	8443	8720	1	28
1570	8997	9273	9550	9826	0103	0379	0656	0932	1209	1485	2	55
71	1961762	2038	2315	2591	2867	3144	3420	3697	3973	4249	3	83
72	4525	4802	5078	5354	5630	5907	6183	6459	6735	7011	4	111
73	7287	7563	7839	8115	8391	8667	8943	9219	9495	9771	5	132
74	1970047	0323	0599	0875	1151	1427	1702	1978	2254	2530	6	166
75	2806	3081	3357	3633	3908	4184	4460	4735	5011	5287	7	193
76	5562	5838	6113	6389	6664	6940	7215	7491	7766	8042	8	221
77	8317	8592	8868	9143	9418	9694	9969	0244	0520	0795	9	248
78	1981070	1345	1620	1896	2171	2446	2721	2996	3271	3546		275
79	3821	4096	4371	4646	4921	5196	5471	5746	6021	6296	1	28
1580	6571	6846	7121	7395	7670	7945	8220	8495	8769	9044	2	55
81	9319	9593	9868	0143	0417	0692	0967	1241	1516	1790	3	83
82	1992065	2339	2614	2888	3163	3437	3712	3986	4260	4535	4	110
83	4809	5083	5358	5632	5906	6181	6455	6729	7003	7278	5	138
84	7552	7826	8100	8374	8648	8922	9197	9471	9745	10019	6	166
85	2000293	0567	0841	1115	1389	1662	1936	2210	2484	2758	7	193
86	3032	3306	3579	3853	4127	4401	4674	4948	5222	5496	8	221
87	5769	6043	6317	6590	6864	7137	7411	7684	7958	8231	9	248
88	8505	8778	9052	9325	9599	9872	0146	0419	0692	0966		273
89	2011239	1512	1786	2059	2332	2605	2879	3152	3425	3698	1	28
1590	3971	4244	4517	4791	5064	5337	5610	5883	6156	6429	2	55
91	6702	6975	7248	7521	7794	8066	8339	8612	8885	9158	3	83
92	9431	9703	9976	0249	0522	0794	1067	1340	1612	1885	4	110
93	2022158	2430	2703	2976	3248	3521	3793	4066	4338	4611	5	137
94	4883	5156	5428	5700	5973	6245	6518	6790	7062	7335	6	164
95	7607	7879	8151	8424	8696	8968	9240	9512	9785	0057	7	192
96	2030329	0601	0873	1145	1417	1689	1961	2233	2505	2777	8	219
97	3049	3321	3593	3865	4137	4409	4681	4952	5224	5496	9	247
98	5768	6040	6311	6583	6855	7126	7398	7670	7941	8213		272
99	8485	8756	9028	9299	9571	9842	0114	0385	0657	0928	1	28
1600	2041200	1471	1743	2014	2285	2557	2828	3099	3371	3642	2	55
01	3913	4185	4456	4727	4998	5269	5541	5812	6083	6354	3	82
02	6625	6896	7167	7438	7709	7980	8251	8522	8793	9064	4	110
03	9335	9606	9877	0148	0419	0690	0960	1231	1502	1773	5	137
N.	0	1	2	3	4	5	6	7	8	9		273

PROPORTIONAL PARTS.

D	1	2	3	4	5	6	7	8	9	D	1	2	3	4	5	6	7	8	9
272	27	54	82	109	136	163	190	218	245	270	27	54	81	108	135	161	189	216	243
271	27	54	81	108	136	163	190	217	244	269	27	54	81	108	135	161	188	215	242

P.Ts.

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
1604	2052044	2314	2585	2856	3127	3397	3668	3939	4209	4480		268
05	4750	5021	5292	5562	5833	6103	6374	6644	6915	7185		1 27
06	7455	7726	7996	8267	8537	8807	9078	9348	9618	9889		2 54
07	2060159	0429	0699	0969	1240	1510	1780	2050	2320	2590	270	3 80
08	2860	3131	3401	3671	3941	4211	4481	4751	5021	5291		4 107
09	5560	5830	6100	6370	6640	6910	7180	7449	7719	7989		5 134
1610	8259	8529	8798	9068	9338	9607	9877	0147	0416	0686		6 161
11	2070955	1225	1495	1764	2034	2303	2573	2842	3112	3381		7 188
12	3659	3920	4189	4459	4728	4997	5267	5536	5805	6074	269	8 214
13	63441	713	6882	7151	7421	7690	7959	8228	8497	8766		9 241
14	90352	064	9573	9842	0111	0380	0649	0918	1187	1456		1 27
15	20817252	294	2263	2532	2801	3070	3338	3607	3876	4145		2 53
16	4414	5082	4951	5220	5488	5757	6026	6294	6563	6832	269	3 80
17	7100	7369	7637	7906	8174	8443	8711	8980	9248	9517		4 107
18	9785	0054	0322	0590	0859	1127	1395	1664	1932	2200		5 134
19	2092158	2737	3005	3273	3541	3810	4078	4346	4614	4882	268	6 160
1620	5150	5418	5686	5954	6222	6490	6758	7026	7294	7562		7 186
21	7830	8098	8366	8634	8902	9170	9437	9705	9973	0241		8 213
22	2100508	0776	1044	1312	1579	1847	2115	2382	2650	2918		9 239
23	3185	3453	3720	3988	4255	4523	4790	5058	5325	5593		1 27
24	5860	6128	6395	6662	6930	7197	7464	7732	7999	8266	267	2 53
25	8534	8801	9068	9335	9603	9870	0137	0404	0671	0938		3 80
26	2111205	1472	1740	2007	2274	2541	2808	3075	3342	3609		4 106
27	3876	4142	4409	4676	4943	5210	5477	5744	6010	6277	267	5 133
28	6544	6811	7078	7344	7611	7878	8144	8411	8678	8944		6 160
29	9211	9477	9744	0011	0277	0544	0810	1077	1343	1610		7 186
1630	2121676	2142	2409	2675	2942	3208	3474	3741	4007	4273		8 213
31	4540	4806	5072	5338	5605	5871	6137	6403	6669	6935	266	9 239
32	7202	7468	7734	8000	8266	8532	8798	9064	9330	9596		1 27
33	9862	0128	0394	0660	0926	1191	1457	1723	1989	2255		2 53
34	2132521	2786	3052	3318	3584	3849	4115	4381	4646	4912		3 80
35	5178	5443	5709	5974	6240	6505	6771	7037	7302	7568		4 106
36	7833	8098	8364	8629	8895	9160	9425	9691	9956	0221		5 133
37	2140487	0752	1017	1283	1548	1813	2078	2343	2609	2874		6 160
38	3139	3404	3669	3934	4199	4464	4730	4995	5260	5525	265	7 186
39	5790	6055	6319	6584	6849	7114	7379	7644	7909	8174		8 212
1640	8438	8703	8968	9233	9498	9762	0027	0292	0556	0821		9 238
41	2151086	1350	1615	1880	2144	2409	2673	2938	3203	3467		1 26
42	3732	3996	4260	4525	4789	5054	5318	5583	5847	6111		2 53
43	6376	6640	6904	7169	7433	7697	7961	8226	8490	8754		3 79
44	9018	9282	9546	9811	0075	0339	0603	0867	1131	1395	264	4 105
45	2161659	1923	2187	2451	2715	2979	3243	3507	3771	4034		5 132
46	4298	4562	4826	5090	5354	5617	5881	6145	6409	6672		6 158
47	6936	7200	7463	7727	7991	8254	8518	8781	9045	9309		7 184
48	9572	9836	0099	0363	0626	0890	1153	1416	1680	1943		8 210
49	2172207	2470	2733	2997	3260	3523	3786	4050	4313	4576	263	9 237
50	4839	5103	5366	5629	5892	6155	6418	6682	6945	7208		1 26
51	7471	7734	7997	8260	8523	8786	9049	9312	9575	9838		2 53
52	2180100	0363	0626	0889	1152	1415	1677	1940	2203	2466		3 79
53	2729	2991	3254	3517	3779	4042	4305	4567	4830	5092		4 105
N.	0	1	2	3	4	5	6	7	8	9	D	Pts.

N. 17000 L. 230

OF NUMBERS.

(21)

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
1700	2304489	4745	5000	5256	5511	5766	6022	6277	6532	6788		252
01	7043	7298	7554	7809	8064	8320	8575	8830	9085	9340		1 25
02	9596	9851	0106	0361	0616	0871	1126	1381	1636	1891	255	2 50
03	2312146	2401	2656	2911	3166	3421	3676	3931	4186	4441		3 76
04	4696	4951	5206	5460	5715	5970	6225	6480	6734	6989		4 101
05	7244	7499	7753	8008	8263	8517	8772	9026	9281	9536		5 126
06	9790	0045	0299	0554	0808	1063	1317	1572	1826	2081		6 151
07	2322335	2590	2844	3098	3353	3607	3861	4116	4370	4624		7 176
08	4870	5133	5387	5641	5896	6150	6404	6658	6912	7166		8 202
09	7421	7675	7929	8183	8437	8691	8945	9199	9453	9707		9 227
1710	9961	0615	0469	0723	0977	1231	1485	1739	1992	2246	254	251
11	2332500	2754	3008	3262	3515	3769	4023	4277	4530	4784		1 25
12	5037	5291	5545	5799	6052	6306	6559	6813	7067	7320		2 50
13	7571	7827	8081	8334	8588	8841	9095	9348	9601	9855		3 75
14	2340101	0362	0615	0868	1122	1375	1628	1881	2135	2388		4 100
15	2041	2894	3148	3401	3654	3907	4160	4414	4667	4920		5 126
16	5173	5426	5679	5932	6185	6438	6691	6944	7197	7450	253	6 151
17	7703	7956	8209	8462	8715	8967	9220	9473	9726	9979		7 176
18	2350232	0484	0737	0990	1243	1495	1748	2001	2253	2506		8 201
19	2759	3011	3264	3517	3769	4022	4274	4527	4779	5032		9 226
1720	5284	5537	5789	6042	6294	6547	6799	7052	7304	7556		250
21	7809	8061	8313	8566	8818	9070	9323	9575	9827	0079		1 25
22	2360331	0584	0836	1088	1340	1592	1844	2097	2349	2601		2 50
23	2853	3105	3357	3609	3861	4113	4365	4617	4869	5121	252	3 75
24	5373	5625	5876	6128	6380	6632	6884	7136	7387	7639		4 100
25	7891	8143	8394	8646	8898	9150	9401	9653	9905	0156		5 125
26	2370408	0630	0881	1133	1384	1636	1887	2139	2390	2642		6 150
27	2923	3175	3426	3678	3929	4181	4432	4683	4935	5186		7 175
28	5437	5689	5940	6191	6443	6694	6945	7196	7448	7699		8 200
29	7950	8201	8452	8703	8955	9206	9457	9708	9959	0210		9 225
1730	2380461	0712	0963	1214	1465	1716	1967	2218	2469	2720	251	249
31	2971	3222	3472	3723	3974	4225	4476	4727	4977	5228		1 25
32	5479	5730	5980	6231	6482	6732	6983	7234	7484	7735		2 50
33	7986	8236	8487	8737	8988	9238	9489	9739	9990	0240		3 75
34	2390491	0741	0992	1242	1493	1743	1993	2244	2494	2744		4 100
35	2995	3245	3495	3746	3996	4246	4496	4747	4997	5247		5 125
36	5497	5747	5998	6248	6498	6748	6998	7248	7498	7748		6 149
37	7998	8248	8498	8748	8998	9248	9498	9748	9998	0248	250	7 174
38	2400498	0748	0997	1247	1497	1747	1997	2247	2496	2746		8 199
39	2996	3246	3495	3745	3995	4244	4494	4744	4993	5243		9 224
1740	5492	5742	5992	6241	6491	6740	6990	7239	7489	7738		248
41	7988	8237	8487	8736	8985	9235	9484	9734	9983	0232		1 25
42	2410482	0731	0980	1229	1479	1728	1977	2226	2476	2725		2 50
43	2974	3223	3472	3721	3970	4220	4469	4718	4967	5216	249	3 74
44	5465	5714	5963	6212	6461	6710	6959	7208	7457	7705		4 99
45	7954	8203	8452	8701	8950	9199	9447	9696	9945	0194		5 124
46	240442	0691	0940	1189	1437	1686	1935	2183	2432	2680		6 148
47	2929	3178	3426	3675	3923	4172	4420	4669	4917	5166		7 173
48	5414	5663	5911	6160	6408	6656	6905	7153	7401	7650		8 198
49	7898	8146	8395	8643	8891	9139	9388	9636	9884	0132		9 223
N.	0	1	2	3	4	5	6	7	8	9	D	Pts.

(22)

LOGARITHMS

N. 17500 L. 243

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
1750	2430380	0629	0877	1125	1373	1621	1869	2117	2365	2613	248	246
51	2861	3109	3357	3605	3853	4101	4349	4597	4845	5093		1 25
52	5341	5589	5837	6085	6332	6580	6828	7076	7324	7571		2 49
53	7819	8067	8315	8562	8810	9058	9305	9553	9801	0048		3 74
54	2440296	0543	0791	1039	1286	1534	1781	2029	2276	2524		4 98
55	2771	3019	3266	3514	3761	4008	4256	4503	4750	4998		5 123
56	5245	5492	5740	5987	6234	6482	6729	6976	7223	7470		6 148
57	7718	7965	8212	8459	8706	8953	9200	9448	9695	9942		7 172
58	2450189	0436	0683	0930	1177	1424	1671	1918	2165	2411	247	8 197
59	2658	2905	3152	3399	3646	3893	4140	4386	4633	4880		9 221
1760	5127	5373	5620	5867	6114	6360	6607	6854	7100	7347		245
61	7594	7840	8087	8333	8580	8826	9073	9320	9566	9813		1 25
62	2460059	0306	0552	0798	1045	1291	1538	1784	2030	2277		2 49
63	2523	2769	3016	3262	3508	3755	4001	4247	4493	4740		3 74
64	4986	5232	5478	5724	5970	6217	6463	6709	6955	7201		4 98
65	7447	7693	7939	8185	8431	8677	8923	9169	9415	9661	246	5 123
66	9907	0153	0399	0645	0891	1136	1382	1628	1874	2120		6 147
67	2472365	2611	2857	3103	3349	3594	3840	4086	4331	4577		7 172
68	4823	5068	5314	5559	5805	6051	6296	6542	6787	7033		8 196
69	7278	7524	7769	8015	8260	8506	8751	8997	9242	9487		9 221
1770	9733	9978	0223	0469	0714	0959	1205	1450	1695	1940		244
71	2482186	2431	2676	2921	3166	3412	3657	3902	4147	4392		1 24
72	4637	4882	5127	5372	5617	5862	6107	6352	6597	6842	245	2 49
73	7087	7332	7577	7822	8067	8312	8557	8802	9047	9291		3 73
74	9536	9781	0026	0271	0515	0760	1005	1249	1494	1739		4 98
75	2491984	2228	2473	2718	2962	3207	3451	3696	3941	4185		5 122
76	4430	4674	4919	5163	5408	5652	5897	6141	6385	6630		6 146
77	6874	7119	7363	7607	7852	8096	8340	8585	8829	9073		7 171
78	9318	9562	9806	0050	0294	0539	0783	1027	1271	1515		8 195
79	2501759	2004	2248	2492	2736	2980	3224	3468	3712	3956	244	9 220
1780	4200	4444	4688	4932	5176	5420	5664	5908	6151	6395		243
81	6639	6883	7127	7371	7614	7858	8102	8346	8590	8833		1 24
82	9077	9321	9564	9808	0052	0295	0539	0783	1026	1270		2 48
83	2511513	1757	2001	2244	2488	2731	2975	3218	3462	3705		3 73
84	3949	4192	4435	4679	4922	5166	5409	5652	5896	6139		4 97
85	6382	6625	6869	7112	7355	7599	7842	8085	8328	8571		5 122
86	8815	9058	9301	9544	9787	0030	0273	0516	0759	1002	243	6 146
87	2521246	1489	1732	1975	2218	2461	2703	2946	3189	3432		7 170
88	3675	3918	4161	4404	4647	4889	5132	5375	5618	5861		8 194
89	6103	6346	6589	6832	7074	7317	7560	7802	8045	8288		9 219
1790	8530	8773	9016	9258	9501	9743	9986	0228	0471	0713		242
91	2530956	1198	1441	1683	1926	2168	2411	2653	2895	3138		1 24
92	3380	3622	3865	4107	4349	4592	4834	5076	5318	5561		2 48
93	5803	6045	6287	6529	6772	7014	7256	7498	7740	7982		3 72
94	8224	8466	8709	8951	9193	9435	9677	9919	0161	0403	242	4 95
95	2540645	0886	1128	1370	1612	1854	2096	2338	2580	2822		5 121
96	3063	3305	3547	3789	4030	4272	4514	4756	4997	5239		6 145
97	5481	5722	5964	6206	6447	6689	6931	7172	7414	7655		7 169
98	7897	8138	8380	8621	8863	9104	9346	9587	9829	0070		8 193
99	2550312	0553	0794	1036	1277	1519	1760	2001	2242	2484		9 217
N.	0	1	2	3	4	5	6	7	8	9	D	Pts.

N 18000 L. 255 Q F N U M B E R S.											(23)	
N.	O	I	2	3	4	5	6	7	8	9	D	Pro.
1800	2552725	2966	3208	3449	3690	3931	4172	4414	4655	4896		240
01	5137	5378	5619	5860	6102	6343	6584	6825	7066	7307	241	1 24
02	7548	7789	8030	8271	8512	8753	8994	9235	9475	9716		2 48
03	9957	0198	0439	0680	0921	1161	1402	1643	1884	2125		3 72
04	2562365	2606	2847	3087	3328	3569	3810	4050	4291	4531		4 96
05	4772	5013	5253	5494	5734	5975	6215	6456	6696	6937		5 120
06	7177	7418	7658	7899	8139	8380	8620	8860	9101	9341		6 144
07	9582	9822	0062	0302	0543	0783	1023	1264	1504	1744		7 168
08	2571884	2224	2465	2705	2945	3185	3425	3665	3905	4146	240	8 192
09	4335	4626	4866	5106	5346	5586	5826	6066	6306	6546		9 216
1810	6786	7026	7266	7506	7745	7985	8225	8465	8705	8945		1 24
11	9185	9424	9664	9904	0144	0383	0623	0863	1103	1342		2 48
12	2581582	1622	2061	2301	2541	2780	3020	3259	3499	3738		3 72
13	3978	4218	4457	4697	4936	5176	5415	5655	5894	6133		4 96
14	6373	6612	6852	7091	7330	7570	7809	8048	8288	8527		5 120
15	8766	9006	9245	9484	9723	9963	0202	0441	0680	0919		6 144
16	2591158	1398	1637	1876	2115	2354	2593	2832	3071	3310	239	7 168
17	3549	3788	4027	4266	4505	4744	4983	5222	5461	5700		8 192
18	5939	6178	6417	6655	6894	7133	7372	7611	7849	8088		9 216
19	8327	8566	8804	9043	9282	9521	9759	9998	0237	0475		1 24
1820	2600714	0952	1191	1430	1668	1907	2145	2384	2622	2861		2 48
21	3099	3338	3576	3815	4053	4292	4530	4769	5007	5245		3 72
22	5484	5722	5960	6199	6437	6675	6914	7152	7390	7628		4 96
23	7867	8105	8343	8581	8820	9058	9296	9534	9772	0010		5 120
24	2610248	0486	0725	0963	1201	1439	1677	1915	2153	2391	238	6 144
25	2629	2867	3105	3343	3580	3818	4056	4294	4532	4770		7 168
26	5002	5240	5478	5715	5952	6197	6435	6672	6910	7148		8 192
27	7385	7623	7861	8099	8336	8574	8811	9049	9287	9524		9 216
28	9762	9999	0237	0475	0712	0950	1187	1425	1662	1900		1 24
29	2622137	2374	2612	2849	3087	3324	3562	3799	4036	4274		2 48
1830	4511	4748	4986	5223	5460	5697	5935	6172	6409	6646		3 72
31	6883	7121	7358	7595	7832	8069	8306	8543	8781	9018	237	4 96
32	9255	9492	9729	9966	0203	0440	0677	0914	1151	1388		5 120
33	2631625	1862	2098	2335	2572	2809	3046	3283	3520	3757		6 144
34	3993	4230	4467	4704	4940	5177	5414	5651	5887	6124		7 168
35	6361	6597	6834	7071	7307	7544	7780	8017	8254	8490		8 192
36	8727	8963	9200	9436	9673	9909	0146	0382	0619	0855		9 216
37	2641092	1328	1564	1801	2037	2273	2510	2746	2982	3219		1 24
38	3455	3691	3928	4164	4400	4636	4873	5109	5345	5581		2 48
39	5817	6053	6290	6526	6762	6998	7234	7470	7706	7942	236	3 72
1840	8178	8414	8650	8886	9122	9358	9594	9830	0066	0302		4 96
41	2650538	0774	1010	1246	1481	1717	1953	2189	2425	2660		5 120
42	2896	3132	3368	3604	3839	4075	4311	4546	4782	5018		6 144
43	5253	5489	5725	5960	6196	6431	6667	6903	7138	7374		7 168
44	7609	7845	8080	8316	8551	8787	9022	9257	9493	9728		8 192
45	9964	0199	0434	0670	0905	1140	1376	1611	1846	2082		9 216
46	2662317	2552	2787	3023	3258	3493	3728	3963	4199	4434		1 24
47	4669	4904	5139	5374	5609	5844	6080	6315	6550	6785	235	2 48
48	7020	7255	7490	7725	7960	8195	8429	8664	8899	9134		3 72
49	9369	9604	9839	0074	0309	0543	0778	1013	1248	1483		4 96
N.	O	I	2	3	4	5	6	7	8	9	D	Pts.

(24)

LOGARITHMS

N. 18500 L. 257

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
1850	2671717	1952	2187	2421	2656	2891	3126	3360	3595	3830		234
51	4064	4299	4533	4768	5003	5237	5472	5706	5941	6175	1	23
52	6410	6644	6879	7113	7348	7582	7817	8051	8285	8520	2	47
53	8754	8989	9223	9457	9692	9926	0160	0394	0629	0863	3	70
54	2681097	1332	1566	1800	2034	2268	2503	2737	2971	3205	4	94
55	3439	3673	3907	4141	4376	4610	4844	5078	5312	5546	5	117
56	5780	6014	6248	6482	6716	6950	7183	7417	7651	7885	6	140
57	8119	8353	8587	8821	9054	9288	9522	9756	9990	0223	7	164
58	2690457	0691	0925	1158	1392	1626	1859	2093	2327	2560	8	187
59	2794	3028	3261	3495	3728	3962	4195	4429	4662	4896	9	211
1860	5129	5363	5596	5830	6063	6297	6530	6764	6997	7230		233
61	7464	7697	7930	8164	8397	8630	8864	9097	9330	9564	1	23
62	9797	0030	0263	0496	0730	0963	1196	1429	1662	1895	2	47
63	2702129	2362	2595	2828	3061	3294	3527	3760	3993	4226	3	70
64	4459	4692	4925	5158	5391	5624	5857	6090	6323	6555	4	93
65	6788	7021	7254	7487	7720	7953	8185	8418	8651	8884	5	117
66	9116	9349	9582	9815	0047	0280	0513	0745	0978	1211	6	140
67	2711443	1676	1908	2141	2374	2606	2839	3071	3304	3536	7	163
68	3769	4001	4234	4466	4699	4931	5163	5396	5628	5861	8	186
69	6093	6325	6558	6790	7022	7255	7487	7719	7952	8184	9	210
1870	8416	8648	8881	9113	9345	9577	9809	0041	0274	0506		232
71	2720738	0970	1202	1434	1666	1898	2130	2362	2594	2826	1	23
72	3058	3290	3522	3754	3986	4218	4450	4682	4914	5146	2	46
73	5378	5610	5841	6073	6305	6537	6769	7001	7232	7464	3	70
74	7696	7928	8159	8391	8623	8854	9086	9318	9549	9781	4	93
75	2730013	0244	0476	0708	0939	1171	1402	1634	1865	2097	5	116
76	2328	2560	2791	3023	3254	3486	3717	3949	4180	4411	6	139
77	4643	4874	5105	5337	5568	5799	6031	6262	6493	6725	7	162
78	6956	7187	7418	7650	7881	8112	8343	8574	8806	9037	8	185
79	9268	9499	9730	9961	0192	0423	0654	0885	1116	1347	9	208
1880	2741578	1809	2040	2271	2502	2733	2964	3195	3426	3657		231
81	3888	4119	4350	4581	4811	5042	5273	5504	5735	5965	1	23
82	6196	6427	6658	6888	7119	7350	7581	7811	8042	8273	2	46
83	8503	8734	8964	9195	9426	9656	9887	0117	0348	0578	3	69
84	2750809	1039	1270	1500	1731	1961	2192	2422	2653	2883	4	92
85	3114	3344	3574	3805	4035	4265	4496	4726	4956	5187	5	115
86	5417	5647	5877	6108	6338	6568	6798	7028	7259	7489	6	138
87	7719	7949	8179	8409	8640	8870	9100	9330	9560	9790	7	161
88	2760020	0250	0480	0710	0940	1170	1400	1630	1860	2090	8	184
89	2320	2549	2779	3009	3239	3469	3699	3929	4158	4388	9	207
1890	4618	4848	5078	5307	5537	5767	5997	6226	6456	6686		229
91	6915	7145	7375	7604	7834	8063	8293	8523	8752	8982	1	23
92	9211	9441	9670	9900	0129	0359	0588	0818	1047	1277	2	46
93	2771506	1736	1965	2194	2424	2653	2882	3112	3341	3570	3	69
94	3800	4029	4258	4488	4717	4946	5175	5405	5634	5863	4	92
95	6092	6321	6550	6780	7009	7238	7467	7696	7925	8154	5	115
96	8383	8612	8841	9070	9299	9528	9757	9986	0215	0444	6	137
97	2780673	0902	1131	1360	1589	1818	2047	2276	2504	2733	7	160
98	2962	3191	3420	3648	3877	4106	4335	4564	4792	5021	8	183
99	5250	5478	5707	5936	6164	6393	6622	6850	7079	7307	9	206
N.	0	1	2	3	4	5	6	7	8	9	D	Pts.

N.	O	1	2	3	4	5	6	7	8	9	D	Pro.
1900	2787536	7765	7993	8222	8450	8679	8907	9136	9364	9593		228
01	9821	0050	0278	0506	0735	0963	1192	1420	1648	1877		1 23
02	2792105	2333	2562	2790	3018	3247	3475	3703	3931	4160		2 46
03	4388	4616	4844	5072	5301	5529	5757	5985	6213	6441		3 68
04	6669	6898	7126	7354	7582	7810	8038	8266	8494	8722		4 91
05	8950	9178	9406	9634	9862	0090	0317	0545	0773	1001	228	5 114
06	2801229	1457	1685	1912	2140	2368	2596	2824	3051	3279		6 137
07	3507	3735	3962	4190	4418	4645	4873	5101	5328	5556		7 160
08	5784	6011	6239	6467	6694	6922	7149	7377	7604	7832		8 182
09	8059	8287	8514	8742	8969	9197	9424	9651	9879	0106		9 205
1910	2810334	0561	0788	1016	1243	1470	1698	1925	2152	2380		227
11	2607	2834	3061	3289	3516	3743	3970	4197	4425	4652		1 23
12	4879	5106	5333	5560	5787	6014	6242	6469	6696	6923	227	2 45
13	7150	7377	7604	7831	8058	8285	8512	8739	8966	9192		3 68
14	9419	9646	9873	0100	0327	0554	0781	1007	1234	1461		4 91
15	2821688	1915	2141	2368	2595	2822	3048	3275	3502	3728		5 114
16	3955	4182	4408	4635	4862	5088	5315	5541	5768	5995		6 136
17	6221	6448	6674	6901	7127	7354	7580	7807	8033	8260		7 158
18	8486	8712	8939	9165	9392	9618	9844	0071	0297	0523		8 181
19	2830750	0976	1202	1429	1655	1881	2107	2334	2560	2786		9 204
1920	3012	3238	3465	3691	3917	4143	4369	4595	4821	5048		226
21	5274	5500	5726	5952	6178	6404	6630	6856	7082	7308		1 23
22	7534	7760	7986	8212	8438	8663	8889	9115	9341	9567		2 45
23	9793	0019	0245	0470	0696	0922	1148	1373	1599	1825		3 68
24	2842051	2276	2502	2728	2953	3179	3405	3630	3856	4082		4 90
25	4307	4533	4759	4984	5210	5435	5661	5886	6112	6337		5 113
26	6563	6788	7014	7239	7465	7690	7916	8141	8366	8592		6 135
27	8817	9043	9268	9493	9719	9944	0169	0394	0620	0845		7 158
28	2851070	1296	1521	1746	1971	2196	2422	2647	2872	3097		8 180
29	3322	3547	3773	3998	4223	4448	4673	4898	5123	5348		9 203
1930	5573	5798	6023	6248	6473	6698	6923	7148	7373	7598		225
31	7823	8048	8273	8497	8722	8947	9172	9397	9622	9846		1 23
32	2860071	0296	0521	0746	0970	1195	1420	1644	1869	2094		2 45
33	2319	2543	2768	2993	3217	3442	3666	3891	4116	4340		3 68
34	4565	4789	5014	5238	5463	5687	5912	6136	6361	6585		4 90
35	6810	7034	7259	7483	7707	7932	8156	8381	8605	8829		5 113
36	9054	9278	9502	9726	9951	0175	0399	0624	0848	1072		6 135
37	2871296	1520	1745	1969	2193	2417	2641	2865	3090	3314		7 158
38	3538	3762	3986	4210	4434	4658	4882	5106	5330	5554		8 180
39	5778	6002	6226	6450	6674	6898	7122	7346	7570	7793		9 203
1940	8017	8241	8465	8689	8913	9136	9360	9584	9808	0032		224
41	2880255	0479	0703	0927	1150	1374	1598	1821	2045	2269		1 22
42	2492	2716	2939	3163	3387	3610	3834	4057	4281	4504		2 45
43	4728	4952	5175	5399	5622	5845	6069	6292	6516	6739		3 67
44	6963	7186	7409	7633	7856	8079	8303	8526	8749	8973		4 89
45	9196	9419	9643	9866	0089	0312	0536	0759	0982	1205		5 112
46	2891428	1652	1875	2098	2321	2544	2767	2990	3213	3436		6 134
47	3660	3883	4106	4329	4552	4775	4998	5221	5444	5667		7 156
48	5890	6112	6335	6558	6781	7004	7227	7450	7673	7896		8 178
49	8118	8341	8564	8787	9010	9232	9455	9678	9901	0123		9 201
N.	O	1	2	3	4	5	6	7	8	9	D	Pts.

(26)

LOGARITHMS

N. 19500 I. 2900

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
1950	2900346	0569	0792	1014	1237	1460	1682	1905	2127	2350		
51	2573	2795	3018	3240	3463	3686	3908	4131	4353	4576		222
52	4798	5021	5243	5466	5688	5910	6133	6355	6578	6800		1 22
53	7022	7245	7467	7690	7912	8134	8356	8579	8801	9023		2 44
54	9246	9468	9690	9912	0135	0357	0579	0801	1023	1245		3 67
55	2911468	1690	1912	2134	2356	2578	2800	3022	3244	3466	222	4 89
56	3689	3911	4133	4355	4577	4799	5020	5242	5464	5686		5 111
57	5908	6130	6352	6574	6796	7018	7240	7461	7683	7905		6 133
58	8127	8349	8570	8792	9014	9236	9458	9679	9901	0123		7 155
59	2920344	0566	0788	1009	1231	1453	1674	1896	2118	2339		8 178
1960	2561	2782	3004	3225	3447	3668	3890	4111	4333	4554		9 200
61	4776	4997	5219	5440	5662	5883	6105	6326	6547	6769	221	
62	6990	7211	7433	7654	7875	8097	8318	8539	8760	8982		1 22
63	9203	9424	9645	9867	0088	0309	0530	0751	0973	1194		2 44
64	2931415	1636	1857	2078	2299	2520	2741	2962	3183	3405	221	3 66
65	3626	3847	4068	4289	4510	4730	4951	5172	5393	5614		4 88
66	5835	6056	6277	6498	6719	6940	7160	7381	7602	7823		5 111
67	8044	8264	8485	8706	8927	9147	9368	9589	9810	0030		6 133
68	2940251	0472	0692	0913	1134	1354	1575	1795	2016	2237		7 155
69	2457	2678	2898	3119	3339	3560	3780	4001	4221	4442		8 177
1970	4662	4883	5103	5324	5544	5764	5985	6205	6426	6646		9 199
71	6866	7087	7307	7527	7748	7968	8188	8408	8629	8849	220	
72	9069	9289	9510	9730	9950	0170	0390	0610	0831	1051		1 22
73	2951271	1491	1711	1931	2151	2371	2591	2811	3031	3251	220	2 44
74	3471	3691	3911	4131	4351	4571	4791	5011	5231	5451		3 66
75	5671	5891	6111	6331	6550	6770	6990	7210	7430	7650		4 88
76	7869	8089	8309	8529	8748	8968	9188	9408	9627	9847		5 110
77	2960067	0286	0506	0726	0945	1165	1385	1604	1824	2043		6 132
78	2263	2482	2702	2922	3141	3361	3580	3800	4019	4238		7 154
79	4458	4677	4897	5116	5336	5555	5774	5994	6213	6433		8 176
1980	6652	6871	7091	7310	7529	7748	7968	8187	8406	8626		9 198
81	8845	9064	9283	9502	9722	9941	0160	0379	0598	0817	219	
82	2971037	1256	1475	1694	1913	2132	2351	2570	2789	3008	219	1 22
83	3227	3446	3665	3884	4103	4322	4541	4760	4979	5198		2 44
84	5417	5636	5854	6073	6292	6511	6730	6949	7168	7386		3 66
85	7605	7824	8043	8261	8480	8699	8918	9136	9355	9574		4 88
86	9792	0011	0230	0448	0667	0886	1104	1323	1542	1760		5 110
87	2981979	2197	2416	2634	2853	3071	3290	3508	3727	3945		6 131
88	4164	4382	4601	4819	5038	5256	5474	5693	5911	6129		7 153
89	6348	6566	6785	7003	7221	7439	7658	7876	8094	8313		8 175
1990	8531	8749	8967	9185	9404	9622	9840	0058	0276	0494		9 197
91	2990713	0931	1149	1367	1585	1803	2021	2239	2457	2675	218	
92	2893	3111	3329	3547	3765	3983	4201	4419	4637	4855	218	1 22
93	5073	5291	5509	5727	5945	6162	6380	6598	6816	7034		2 44
94	7252	7469	7687	7905	8123	8340	8558	8776	8994	9211		3 65
95	9429	9647	9864	0082	0300	0517	0735	0953	1170	1388		4 87
96	3001605	1823	2041	2258	2476	2693	2911	3128	3346	3563		5 109
97	3781	3998	4216	4433	4650	4868	5085	5303	5520	5737		6 131
98	5955	6172	6390	6607	6824	7042	7259	7476	7693	7911		7 153
99	8128	8345	8562	8780	8997	9214	9431	9648	9866	0083		8 174
N.	0	1	2	3	4	5	6	7	8	9	D	Pts.

N. 20000 L. 301

OF NUMBERS.

(27)

N.	O	I	2	3	4	5	6	7	8	9	D	Pro.
2000	3010300	0517	0734	0951	1168	1386	1603	1820	2037	2254		
01	2471	2688	2905	3122	3339	3556	3773	3990	4207	4424	217	217
02	4641	4858	5075	5291	5508	5725	5942	6159	6376	6593	1	22
03	6809	7026	7243	7460	7677	7893	8110	8327	8544	8760	2	43
04	8977	9194	9411	9627	9844	0061	0277	0494	0711	0927	3	65
05	3021144	1360	1577	1794	2010	2227	2443	2660	2876	3093	4	87
06	3309	3526	3742	3959	4175	4392	4608	4825	5041	5257	5	109
07	5474	5690	5906	6123	6339	6556	6772	6988	7204	7421	6	130
08	7637	7853	8070	8286	8502	8718	8935	9151	9367	9583	7	152
09	9799	0016	0232	0448	0664	0880	1096	1312	1528	1745	8	174
2010	3031961	2177	2393	2609	2825	3041	3257	3473	3689	3905	216	216
11	4121	4337	4553	4769	4984	5200	5416	5632	5848	6064	1	22
12	6280	6496	6711	6927	7143	7359	7575	7790	8006	8222	2	43
13	8438	8653	8869	9085	9301	9516	9732	9948	0163	0379	3	65
14	3040595	0810	1026	1242	1457	1673	1888	2104	2319	2535	4	86
15	2751	2966	3182	3397	3613	3828	4043	4259	4474	4690	5	108
16	4905	5121	5336	5552	5767	5982	6198	6413	6628	6844	6	130
17	7059	7274	7490	7705	7920	8135	8351	8566	8781	8996	7	151
18	9212	9427	9642	9857	0072	0288	0503	0718	0933	1148	8	173
19	3051363	1578	1793	2008	2224	2439	2654	2869	3084	3299	9	194
2020	3511	3729	3944	4159	4374	4589	4803	5018	5233	5448	215	215
21	5663	5878	6093	6308	6523	6737	6952	7167	7382	7597	1	22
22	7812	8026	8241	8456	8671	8885	9100	9315	9529	9744	2	43
23	9959	0174	0388	0603	0817	1032	1247	1461	1676	1891	3	65
24	3062105	2320	2534	2749	2963	3178	3392	3607	3821	4036	4	86
25	4250	4465	4679	4894	5108	5322	5537	5751	5966	6180	5	108
26	6394	6609	6823	7037	7252	7466	7680	7895	8109	8323	6	129
27	8537	8752	8966	9180	9394	9609	9823	0037	0251	0465	7	151
28	3070680	0894	1108	1322	1536	1750	1964	2178	2392	2606	8	172
29	2820	3035	3249	3463	3677	3891	4105	4319	4532	4746	9	194
2030	4960	5174	5388	5602	5816	6030	6244	6458	6672	6885	214	214
31	7099	7313	7527	7741	7954	8168	8382	8596	8810	9023	1	21
32	9237	9451	9664	9878	0092	0306	0519	0733	0947	1160	2	43
33	3081374	1587	1801	2015	2228	2442	2655	2869	3082	3296	3	64
34	3509	3723	3936	4150	4363	4577	4790	5004	5217	5431	4	86
35	5644	5858	6071	6284	6498	6711	6924	7138	7351	7564	5	107
36	7778	7991	8204	8418	8631	8844	9057	9271	9484	9697	6	128
37	9910	0123	0337	0550	0763	0976	1189	1402	1616	1829	7	150
38	3092042	2255	2468	2681	2894	3107	3320	3533	3746	3959	8	171
39	4172	4385	4598	4811	5024	5237	5450	5663	5876	6089	9	193
2040	6302	6515	6727	6940	7153	7366	7579	7792	8004	8217	213	213
41	8430	8643	8856	9068	9281	9494	9707	9919	0132	0345	1	21
42	3100557	0770	0983	1195	1408	1621	1833	2046	2258	2471	2	43
43	2684	2896	3109	3321	3534	3746	3959	4171	4384	4596	3	64
44	4809	5021	5234	5446	5659	5871	6084	6296	6508	6721	4	85
45	6933	7145	7358	7570	7783	7995	8207	8419	8632	8844	5	107
46	9056	9269	9481	9693	9905	0117	0330	0542	0754	0966	6	128
47	3111178	1391	1603	1815	2027	2239	2451	2663	2875	3087	7	149
48	3300	3512	3724	3936	4148	4360	4572	4784	4996	5208	8	170
49	5420	5632	5843	6055	6267	6479	6691	6903	7115	7327	9	192
N.	O	I	2	3	4	5	6	7	8	9	D	Pts.

(28)

LOGARITHMS

* N. 20500 L. 311

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
2050	3117539	7750	7962	8174	8386	8598	8810	9021	9233	9445		
51	9657	9868	0080	0292	0504	0715	0927	1139	1350	1562		212
52	3121774	1985	2197	2408	2620	2832	3043	3255	3466	3678		1 21
53	3889	4101	4313	4524	4736	4947	5159	5370	5581	5793		2 42
54	6004	6216	6427	6639	6850	7061	7273	7484	7696	7907		3 64
55	8118	8330	8541	8752	8964	9175	9386	9597	9809	0020		4 85
56	3130231	0442	0654	0865	1076	1287	1498	1709	1921	2132		5 106
57	2343	2554	2765	2976	3187	3398	3610	3821	4032	4243		6 127
58	4454	4665	4876	5087	5298	5509	5720	5931	6142	6353	211	7 148
59	6563	6774	6985	7196	7407	7618	7829	8040	8251	8461		8 170
2060	8672	8883	9094	9305	9515	9726	9937	0148	0358	0569		9 191
61	3140780	0991	1201	1412	1623	1833	2044	2255	2465	2676		211
62	2887	3097	3308	3518	3729	3940	4150	4361	4571	4782		1 21
63	4992	5203	5413	5624	5834	6045	6255	6466	6676	6887		2 42
64	7097	7307	7518	7728	7939	8149	8359	8570	8780	8990		3 63
65	9201	9411	9621	9831	0042	0252	0462	0672	0883	1093		4 84
66	3151303	1513	1724	1934	2144	2354	2564	2774	2985	3195		5 106
67	3405	3615	3825	4035	4245	4455	4665	4875	5085	5295	210	6 127
68	5505	5715	5925	6135	6345	6555	6765	6975	7185	7395		7 148
69	7605	7815	8025	8235	8444	8654	8864	9074	9284	9494		8 169
2070	9703	9913	0123	0333	0543	0752	0962	1172	1382	1591		9 190
71	3161801	2011	2220	2430	2640	2849	3059	3269	3478	3688		210
72	3898	4107	4317	4526	4736	4945	5155	5364	5574	5784		1 21
73	5993	6203	6412	6621	6831	7040	7250	7459	7669	7878		2 42
74	8088	8297	8506	8716	8925	9134	9344	9553	9762	9972		3 63
75	3170181	0390	0600	0809	1018	1227	1437	1646	1855	2064		4 84
76	2273	2483	2692	2901	3110	3319	3528	3738	3947	4156		5 105
77	4365	4574	4783	4992	5201	5410	5619	5828	6037	6246		6 126
78	6455	6664	6873	7082	7291	7500	7709	7918	8127	8336	209	7 147
79	8545	8754	8963	9172	9380	9589	9798	0007	0216	0425		8 168
2080	3180633	0842	1051	1260	1468	1677	1886	2095	2303	2512		9 189
81	2721	2929	3138	3347	3556	3764	3973	4181	4390	4599		209
82	4807	5016	5224	5433	5642	5850	6059	6267	6476	6684		1 21
83	6893	7101	7310	7518	7727	7935	8143	8352	8560	8769		2 42
84	8977	9186	9394	9602	9811	0019	0227	0436	0644	0852		3 63
85	3191061	1269	1477	1685	1894	2102	2310	2518	2727	2935		4 84
86	3143	3351	3559	3768	3976	4184	4392	4600	4808	5016		5 105
87	5224	5433	5641	5849	6057	6265	6473	6681	6889	7097	208	6 125
88	7305	7513	7721	7929	8137	8345	8553	8761	8969	9176		7 146
89	9384	9592	9800	0008	0216	0424	0632	0839	1047	1255		8 167
2090	3201463	1671	1878	2086	2294	2502	2709	2917	3125	3333		9 188
91	3540	3748	3956	4163	4371	4579	4786	4994	5202	5409		208
92	5617	5824	6032	6240	6447	6655	6862	7070	7277	7485		1 21
93	7692	7900	8107	8315	8522	8730	8937	9145	9352	9559		2 42
94	9767	9974	0182	0389	0596	0804	1011	1218	1426	1633		3 62
95	3211840	2048	2255	2462	2669	2877	3084	3291	3498	3706		4 83
96	3913	4120	4327	4534	4742	4949	5156	5363	5570	5777		5 104
97	5984	6191	6398	6606	6813	7020	7227	7434	7641	7848	207	6 125
98	8055	8262	8469	8676	8883	9090	9297	9504	9711	9917		7 146
99	3220124	0331	0538	0745	0952	1159	1366	1572	1779	1986		8 166
N.	0	1	2	3	4	5	6	7	8	9	D	Pts.

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
2100	3222193	2400	2607	2813	3020	3227	3434	3640	3847	4054		
01	4261	4467	4674	4881	5087	5294	5501	5707	5914	6121		207
02	6327	6534	6740	6947	7153	7360	7567	7773	7980	8186		1 21
03	8393	8599	8806	9012	9219	9425	9632	9838	0045	0251		2 41
04	3230457	0664	0870	1077	1283	1489	1696	1902	2108	2315		3 62
05	2521	2727	2934	3140	3346	3552	3759	3965	4171	4377		4 83
06	4584	4790	4996	5202	5408	5615	5821	6027	6233	6439		5 104
07	6645	6851	7058	7264	7470	7676	7882	8088	8294	8500		6 124
08	8706	8912	9118	9324	9530	9736	9942	0148	0354	0560	206	7 145
09	3240766	0972	1178	1384	1589	1795	2001	2207	2413	2619		8 166
2110	2825	3030	3236	3442	3648	3854	4059	4265	4471	4677		9 186
11	4882	5088	5294	5499	5705	5911	6117	6322	6528	6734		206
12	6939	7145	7350	7556	7762	7967	8173	8378	8584	8789		1 21
13	8995	9201	9406	9612	9817	0023	0228	0433	0639	0844		2 41
14	3251050	1255	1461	1666	1872	2077	2282	2488	2693	2898		3 62
15	3104	3309	3514	3720	3925	4130	4336	4541	4746	4951		4 82
16	5157	5362	5567	5772	5978	6183	6388	6593	6798	7003		5 103
17	7209	7414	7619	7824	8029	8234	8439	8644	8849	9055	205	6 124
18	9260	9465	9670	9875	0080	0285	0490	0695	0900	1105		7 144
19	3261310	1515	1719	1924	2129	2334	2539	2744	2949	3154		8 165
2120	3359	3563	3768	3973	4178	4383	4588	4792	4997	5202		9 185
21	5407	5611	5816	6021	6226	6430	6635	6840	7044	7249		205
22	7454	7658	7863	8068	8272	8477	8682	8886	9091	9295		1 21
23	9500	9705	9909	0114	0318	0523	0727	0932	1136	1341		2 41
24	3271545	1750	1954	2158	2363	2567	2772	2976	3181	3385		3 62
25	3589	3794	3998	4202	4407	4611	4815	5020	5224	5428		4 82
26	5633	5837	6041	6245	6450	6654	6858	7062	7267	7471		5 103
27	7675	7879	8083	8287	8492	8696	8900	9104	9308	9512		6 123
28	9716	9920	0124	0328	0533	0737	0941	1145	1349	1553	204	7 144
29	3281757	1961	2165	2369	2572	2776	2980	3184	3388	3592		8 164
2130	3796	4000	4204	4408	4612	4815	5019	5223	5427	5631		9 185
31	5834	6038	6242	6446	6650	6853	7057	7261	7465	7668		204
32	7872	8076	8279	8483	8687	8890	9094	9298	9501	9705		1 20
33	9909	0112	0316	0519	0723	0926	1130	1334	1537	1741		2 41
34	3291944	2148	2351	2555	2758	2962	3165	3369	3572	3775		3 61
35	3979	4182	4386	4589	4792	4996	5199	5402	5606	5809		4 82
36	6012	6216	6419	6622	6826	7029	7232	7436	7639	7842		5 102
37	8045	8248	8452	8655	8858	9061	9264	9468	9671	9874		6 122
38	3300077	0280	0483	0686	0889	1093	1296	1499	1702	1905	203	7 143
39	2108	2311	2514	2717	2920	3123	3326	3529	3732	3935		8 163
2140	4138	4341	4544	4747	4949	5152	5355	5558	5761	5964		9 184
41	6167	6370	6572	6775	6978	7181	7384	7586	7789	7992		203
42	8195	8397	8600	8803	9006	9208	9411	9614	9816	0019		1 20
43	3310222	0424	0627	0830	1032	1235	1437	1640	1843	2045		2 41
44	2248	2450	2653	2855	3058	3261	3463	3666	3868	4070		3 61
45	4273	4475	4678	4880	5083	5285	5488	5690	5892	6095		4 81
46	6297	6500	6702	6904	7107	7309	7511	7714	7916	8118		5 102
47	8320	8523	8725	8927	9129	9332	9534	9736	9938	0141		6 122
48	3320343	0545	0747	0949	1151	1354	1556	1758	1960	2162		7 142
49	2364	2566	2768	2970	3172	3374	3577	3779	3981	4183	202	8 162
N.	0	1	2	3	4	5	6	7	8	9	D	Pts.

(30)

LOGARITHMS

N. 21500 L. 332

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
2150	3324385	4587	4789	4991	5193	5394	5596	5798	6000	6202	202	
51	6404	6606	6808	7010	7212	7414	7615	7817	8019	8221		202
52	8423	8624	8826	9028	9230	9432	9633	9835	0037	0239		1 20
53	3330440	0642	0844	1045	1247	1449	1650	1852	2054	2255		2 40
54	2457	2659	2860	3062	3263	3465	3667	3868	4070	4271		3 61
55	4473	4674	4876	5077	5279	5480	5682	5883	6085	6286		4 81
56	6488	6689	6890	7092	7293	7495	7696	7897	8099	8300		5 101
57	8501	8703	8904	9105	9307	9508	9709	9911	0112	0313		6 121
58	3340514	0716	0917	1118	1319	1521	1722	1923	2124	2325		7 141
59	2526	2728	2929	3130	3331	3532	3733	3934	4135	4336		8 162
2160	4538	4739	4940	5141	5342	5543	5744	5945	6146	6347	201	
61	6548	6749	6950	7151	7351	7552	7753	7954	8155	8356		201
62	8557	8758	8959	9159	9360	9561	9762	9963	0164	0364		1 20
63	3350565	0766	0967	1168	1368	1569	1770	1970	2171	2372		2 40
64	2573	2773	2974	3175	3375	3576	3777	3977	4178	4378		3 60
65	4579	4780	4980	5181	5381	5582	5782	5983	6183	6384		4 80
66	6585	6785	6986	7186	7386	7587	7787	7988	8188	8389		5 101
67	8589	8790	8990	9190	9391	9591	9791	9992	0192	0392		6 121
68	3360593	0793	0993	1194	1394	1594	1795	1995	2195	2395		7 141
69	2596	2796	2996	3196	3396	3597	3797	3997	4197	4397		8 161
2170	4597	4797	4998	5198	5398	5598	5798	5998	6198	6398	200	
71	6598	6798	6998	7198	7398	7598	7798	7998	8198	8398		200
72	8598	8798	8998	9198	9398	9598	9798	9998	0198	0397		1 20
73	3370597	0797	0997	1197	1397	1596	1796	1996	2196	2396		2 40
74	2595	2795	2995	3195	3394	3594	3794	3994	4193	4393		3 60
75	4593	4792	4992	5192	5391	5591	5791	5990	6190	6389		4 80
76	6589	6788	6988	7188	7387	7587	7786	7986	8185	8385		5 100
77	8584	8784	8983	9183	9382	9582	9781	9981	0180	0379		6 120
78	3380579	0778	0978	1177	1376	1576	1775	1974	2174	2373		7 140
79	2572	2772	2971	3170	3369	3569	3768	3967	4166	4366		8 160
2180	4565	4764	4963	5163	5362	5561	5760	5959	6158	6358	199	
81	6557	6756	6955	7154	7353	7552	7751	7950	8149	8348		199
82	8547	8746	8946	9145	9344	9543	9742	9940	0139	0338		1 20
83	3390537	0736	0935	1134	1333	1532	1731	1930	2129	2327		2 40
84	2526	2725	2924	3123	3322	3520	3719	3918	4117	4316		3 60
85	4514	4713	4912	5111	5309	5508	5707	5906	6104	6303		4 80
86	6502	6700	6899	7098	7296	7495	7693	7892	8091	8289		5 100
87	8488	8686	8885	9084	9282	9481	9679	9878	0076	0275		6 119
88	3400473	0672	0870	1069	1267	1466	1664	1862	2061	2259		7 139
89	2458	2656	2854	3053	3251	3449	3648	3846	4045	4243		8 159
2190	4441	4639	4838	5036	5234	5433	5631	5829	6027	6226	198	
91	6424	6622	6820	7018	7217	7415	7613	7811	8009	8207		198
92	8405	8604	8802	9000	9198	9396	9594	9792	9990	0188		1 20
93	3410386	0584	0782	0980	1178	1376	1574	1772	1970	2168		2 40
94	2366	2564	2762	2960	3158	3356	3554	3752	3950	4147		3 59
95	4345	4543	4741	4939	5137	5334	5532	5730	5928	6126		4 79
96	6323	6521	6719	6917	7114	7312	7510	7708	7905	8103		5 99
97	8301	8498	8696	8894	9091	9289	9486	9684	9882	0079		6 119
98	3420277	0474	0672	0870	1067	1265	1462	1660	1857	2055		7 139
99	2252	2450	2647	2845	3042	3240	3437	3635	3832	4029		8 158
N.	0	1	2	3	4	5	6	7	8	9	D	Pts.

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
2200	3424227	4424	4622	4819	5016	5214	5411	5608	5806	6003		
01	6200	6398	6595	6792	6990	7187	7384	7581	7779	7976		198
02	8173	8370	8568	8765	8962	9159	9356	9554	9751	9948		1 20
03	3430145	0342	0539	0736	0933	1131	1328	1525	1722	1919		2 40
04	2116	2313	2510	2707	2904	3101	3298	3495	3692	3889	197	3 59
05	4086	4283	4480	4677	4874	5071	5268	5464	5661	5858		4 79
06	6055	6252	6449	6646	6842	7039	7236	7433	7630	7827		5 99
07	8023	8220	8417	8614	8810	9007	9204	9401	9597	9794		6 119
08	9991	0187	0384	0581	0777	0974	1171	1367	1564	1761		7 139
09	3441957	2154	2350	2547	2743	2940	3137	3333	3530	3726		8 158
												9 178
2210	3923	4119	4316	4512	4709	4905	5102	5298	5495	5691		197
11	5887	6084	6280	6477	6673	6869	7066	7262	7459	7655		1 20
12	7851	8048	8244	8440	8636	8833	9029	9225	9422	9618		2 39
13	9814	0010	0207	0403	0599	0795	0991	1188	1384	1580		3 59
14	3451776	1972	2168	2365	2561	2757	2953	3149	3345	3541		4 79
15	3737	3933	4129	4325	4522	4718	4914	5110	5306	5502	196	5 99
16	5698	5894	6090	6285	6481	6677	6873	7069	7265	7461		6 118
17	7657	7853	8049	8245	8440	8636	8832	9028	9224	9420		7 138
18	9615	9811	0007	0203	0399	0594	0790	0986	1182	1377		8 158
19	3461573	1769	1964	2160	2356	2551	2747	2943	3138	3334		9 177
2220	3530	3725	3921	4117	4312	4508	4703	4899	5094	5290		196
21	5486	5681	5877	6072	6268	6463	6659	6854	7050	7245		1 20
22	7411	7606	7801	8027	8222	8418	8613	8808	9004	9199		2 39
23	9395	9590	9785	9981	0176	0371	0567	0762	0957	1153		3 59
24	3471348	1543	1738	1934	2129	2324	2519	2715	2910	3105		4 78
25	3300	3495	3691	3886	4081	4276	4471	4666	4861	5056		5 98
26	5252	5447	5642	5837	6032	6227	6422	6617	6812	7007	195	6 118
27	7202	7397	7592	7787	7982	8177	8372	8567	8762	8957		7 137
28	9152	9347	9542	9737	9931	0126	0321	0516	0711	0906		8 157
29	3481101	1296	1490	1685	1880	2075	2270	2464	2659	2854		9 176
2230	3019	3243	3438	3633	3828	4022	4217	4412	4606	4801		195
31	4996	5190	5385	5580	5774	5969	6164	6358	6553	6747		1 20
32	6942	7136	7331	7526	7720	7915	8109	8304	8498	8693		2 39
33	8887	9082	9276	9471	9665	9860	0054	0248	0443	0637		3 59
34	3490832	1026	1220	1415	1609	1804	1998	2192	2387	2581		4 78
35	2775	2970	3164	3358	3552	3747	3941	4135	4330	4524		5 98
36	4718	4912	5106	5301	5495	5689	5883	6077	6272	6466		6 117
37	6660	6854	7048	7242	7436	7630	7825	8019	8213	8407		7 137
38	8601	8795	8989	9183	9377	9571	9765	9959	0153	0347	194	8 156
39	3500541	0735	0929	1123	1317	1511	1705	1898	2092	2286		9 176
2240	2480	2674	2868	3062	3256	3449	3643	3837	4031	4225		194
41	4419	4612	4806	5000	5194	5387	5581	5775	5969	6162		1 19
42	6356	6550	6743	6937	7131	7325	7518	7712	7905	8099		2 39
43	8293	8486	8680	8874	9067	9261	9454	9648	9841	0035		3 58
44	3510229	0422	0616	0809	1003	1196	1390	1583	1777	1970		4 78
45	2163	2357	2550	2744	2937	3131	3324	3517	3711	3904		5 97
46	4098	4291	4484	4678	4871	5064	5258	5451	5644	5837		6 116
47	6031	6224	6417	6611	6804	6997	7190	7383	7577	7770		7 136
48	7963	8156	8349	8543	8736	8929	9122	9315	9508	9701		8 155
49	9895	0088	0281	0474	0667	0860	1053	1246	1439	1632	193	9 175
N.	0	1	2	3	4	5	6	7	8	9	D	Pts.

(32)

LOGARITHMS

N. 22500 L. 352

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
2250	3521825	2018	2211	2404	2597	2790	2983	3176	3369	3562	193	
51	3755	3948	4141	4334	4527	4720	4912	5105	5298	5491		193
52	5684	5877	6070	6262	6455	6648	6841	7034	7226	7419	1	19
53	7612	7805	7997	8190	8383	8576	8768	8961	9154	9346	2	39
54	9539	9732	9924	0117	0310	0502	0695	0888	1080	1273	3	58
55	3531465	1658	1851	2043	2236	2428	2621	2813	3006	3198	4	77
56	3391	3583	3776	3968	4161	4353	4546	4738	4931	5123	5	97
57	5316	5508	5700	5893	6085	6278	6470	6662	6855	7047	6	116
58	7239	7432	7624	7816	8009	8201	8393	8586	8778	8970	7	135
59	9162	9355	9547	9739	9931	0123	0316	0508	0700	0892	8	154
2260	3541084	1277	1469	1661	1853	2045	2237	2429	2621	2814		
61	3006	3198	3390	3582	3774	3966	4158	4350	4542	4734	192	192
62	4926	5118	5310	5502	5694	5886	6078	6270	6462	6654	1	19
63	6846	7037	7229	7421	7613	7805	7997	8189	8381	8572	2	38
64	8764	8956	9148	9340	9531	9723	9915	0107	0299	0490	3	58
65	3550682	0874	1066	1257	1449	1641	1832	2024	2216	2407	4	77
66	2599	2791	2982	3174	3366	3557	3749	3940	4132	4324	5	96
67	4515	4707	4898	5090	5281	5473	5664	5856	6048	6239	6	115
68	6431	6622	6813	7005	7196	7388	7579	7771	7962	8154	7	134
69	8345	8536	8728	8919	9111	9302	9493	9685	9876	0067	8	154
2270	3560259	0450	0641	0832	1024	1215	1406	1598	1789	1980		
71	2171	2363	2554	2745	2936	3127	3319	3510	3701	3892	191	191
72	4083	4274	4466	4657	4848	5039	5230	5421	5612	5803	1	19
73	5994	6185	6376	6568	6759	6950	7141	7332	7523	7714	2	38
74	7905	8096	8287	8478	8668	8859	9050	9241	9432	9623	3	57
75	9814	0005	0196	0387	0578	0768	0959	1150	1341	1532	4	76
76	3571723	1913	2104	2295	2486	2677	2867	3058	3249	3440	5	96
77	3630	3821	4012	4202	4393	4584	4775	4965	5156	5347	6	115
78	5537	5728	5918	6109	6300	6490	6681	6872	7062	7253	7	134
79	7443	7634	7824	8015	8205	8396	8586	8777	8967	9158	8	153
2280	9348	9539	9729	9920	0110	0301	0491	0682	0872	1062		
81	3581253	1443	1634	1824	2014	2205	2395	2585	2776	2966	190	190
82	3156	3347	3537	3727	3918	4108	4298	4488	4679	4869	1	19
83	5059	5249	5440	5630	5820	6010	6200	6391	6581	6771	2	38
84	6961	7151	7341	7531	7722	7912	8102	8292	8482	8672	3	57
85	8862	9052	9242	9432	9622	9812	0002	0192	0382	0572	4	76
86	3590762	0952	1142	1332	1522	1712	1902	2092	2282	2472	5	95
87	2662	2852	3041	3231	3421	3611	3801	3991	4181	4370	6	114
88	4560	4750	4940	5130	5319	5509	5699	5889	6078	6268	7	133
89	6458	6648	6837	7027	7217	7406	7596	7786	7976	8165	8	152
2290	8355	8544	8734	8924	9113	9303	9493	9682	9872	0061		
91	3600251	0440	0630	0820	1009	1199	1388	1578	1767	1957	189	189
92	2146	2336	2525	2715	2904	3093	3283	3472	3662	3851	1	19
93	4041	4230	4419	4609	4798	4987	5177	5366	5555	5745	2	38
94	5934	6123	6313	6502	6691	6881	7070	7259	7448	7638	3	57
95	7827	8016	8205	8395	8584	8773	8962	9151	9341	9530	4	76
96	9719	9908	0097	0286	0475	0664	0854	1043	1232	1421	5	95
97	3611610	1799	1988	2177	2366	2555	2744	2933	3122	3311	6	113
98	3500	3689	3878	4067	4256	4445	4634	4823	5012	5201	7	132
99	5390	5579	5768	5956	6145	6334	6523	6712	6901	7090	8	151
N.	0	1	2	3	4	5	6	7	8	9	D	Pts.

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
2300	3617278	7467	7656	7845	8034	8222	8411	8600	8789	8977		
01	9166	9355	9544	9732	9921	0110	0298	0487	0676	0865		189
02	3621053	1242	1430	1619	1808	1996	2185	2374	2562	2751		1 19
03	2939	3128	3317	3505	3694	3882	4071	4259	4448	4636		2 38
04	4825	5013	5202	5390	5579	5767	5956	6144	6332	6521		3 57
05	6709	6898	7086	7275	7463	7651	7840	8028	8216	8405		4 76
06	8593	8781	8970	9158	9346	9535	9723	9911	0099	0288		5 95
07	3620476	0664	0852	1041	1229	1417	1605	1794	1982	2170		6 113
08	2358	2546	2734	2923	3111	3299	3487	3675	3863	4051		7 132
09	4239	4427	4615	4804	4992	5180	5368	5556	5744	5932	188	8 151
2310	6120	6308	6496	6684	6872	7060	7248	7436	7624	7812		9 170
11	7999	8187	8375	8563	8751	8939	9127	9315	9503	9690		188
12	9878	0066	0254	0442	0630	0817	1005	1193	1381	1569		1 19
13	3641756	1944	2132	2320	2507	2695	2883	3070	3258	3446		2 38
14	3634	3821	4009	4197	4384	4572	4759	4947	5135	5322		3 56
15	5510	5698	5885	6073	6260	6448	6635	6823	7010	7198		4 75
16	7386	7573	7761	7948	8136	8323	8511	8698	8885	9073		5 94
17	9260	9448	9635	9823	0010	0197	0385	0572	0760	0947		6 113
18	3651134	1322	1509	1696	1884	2071	2258	2446	2633	2820		7 132
19	3007	3195	3382	3569	3757	3944	4131	4318	4505	4693		8 150
2320	4880	5067	5254	5441	5629	5816	6003	6190	6377	6564		9 169
21	6751	6939	7126	7313	7500	7687	7874	8061	8248	8435		187
22	8622	8809	8996	9183	9370	9557	9744	9931	0118	0305		1 19
23	3660492	0679	0866	1053	1240	1427	1614	1801	1987	2174		2 37
24	2361	2548	2735	2922	3109	3296	3482	3669	3856	4043		3 56
25	4230	4416	4603	4790	4977	5163	5350	5537	5724	5910		4 75
26	6097	6284	6471	6657	6844	7031	7217	7404	7591	7777		5 94
27	7964	8150	8337	8524	8710	8897	9083	9270	9457	9643		6 112
28	9830	0016	0203	0389	0576	0762	0949	1135	1322	1508		7 131
29	3671695	1881	2068	2254	2441	2627	2814	3000	3186	3373		8 150
2330	3559	3746	3932	4118	4305	4491	4677	4864	5050	5236		9 168
31	5423	5609	5795	5982	6168	6354	6540	6727	6913	7099		186
32	7285	7472	7658	7844	8030	8217	8403	8589	8775	8961		1 19
33	9147	9334	9520	9706	9892	0078	0264	0450	0636	0822		2 37
34	3681009	1195	1381	1567	1753	1939	2125	2311	2497	2683		3 56
35	2869	3055	3241	3427	3613	3799	3985	4171	4357	4542		4 74
36	4728	4914	5100	5286	5472	5658	5844	6030	6215	6401		5 93
37	6587	6773	6959	7145	7330	7516	7702	7888	8074	8259		6 112
38	8445	8631	8817	9002	9188	9374	9559	9745	9931	0117		7 130
39	3690302	0488	0674	0859	1045	1230	1416	1602	1787	1973		8 149
2340	2159	2344	2530	2715	2901	3086	3272	3458	3643	3829		9 167
41	4014	4200	4385	4571	4756	4942	5127	5313	5498	5683		185
42	5869	6054	6240	6425	6611	6796	6981	7167	7352	7538		1 19
43	7723	7908	8094	8279	8464	8650	8835	9020	9205	9391		2 37
44	9576	9761	9947	0132	0317	0502	0688	0873	1058	1243		3 56
45	3701428	1614	1799	1984	2169	2354	2540	2725	2910	3095		4 74
46	3280	3465	3650	3835	4020	4206	4391	4576	4761	4946		5 93
47	5131	5316	5501	5686	5871	6056	6241	6426	6611	6796		6 111
48	6981	7166	7351	7536	7721	7906	8091	8275	8460	8645		7 130
49	8830	9015	9200	9385	9570	9754	9939	0124	0309	0494		8 148
N.	0	1	2	3	4	5	6	7	8	9	D	Pts.

(34)

LOGARITHMS

N. 23500 L. 371

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
2350	3710679	0863	1048	1233	1418	1603	1787	1972	2157	2342		
51	2526	2711	2896	3080	3265	3450	3635	3819	4004	4189		185
52	4373	4558	4742	4927	5112	5296	5481	5666	5850	6035		1 19
53	6219	6404	6588	6773	6957	7142	7327	7511	7696	7880		2 37
54	8065	8249	8434	8618	8802	8987	9171	9355	9540	9725		3 56
55	9909	0094	0278	0462	0647	0831	1015	1200	1384	1569		4 74
56	3721753	1937	2122	2306	2490	2674	2859	3043	3227	3412		5 93
57	3596	3780	3964	4149	4333	4517	4701	4885	5070	5254		6 111
58	5438	5622	5806	5991	6175	6359	6543	6727	6911	7095		7 130
59	7279	7464	7648	7832	8016	8200	8384	8568	8752	8936	184	8 148
2360	9120	9304	9488	9672	9856	0040	0224	0408	0592	0776		9 167
61	3730960	1144	1328	1512	1696	1879	2063	2247	2431	2615		184
62	2799	2983	3167	3350	3534	3718	3902	4086	4270	4453		1 18
63	4637	4821	5005	5189	5372	5556	5740	5924	6107	6291		2 37
64	6475	6658	6842	7026	7210	7393	7577	7761	7944	8128		3 55
65	8311	8495	8679	8862	9046	9230	9413	9597	9780	9964		4 74
66	3740147	0331	0514	0698	0882	1065	1249	1432	1616	1799		5 92
67	1983	2166	2350	2533	2716	2900	3083	3267	3450	3634		6 110
68	3817	4000	4184	4367	4551	4734	4917	5101	5284	5467		7 129
69	5651	5834	6017	6201	6384	6567	6750	6934	7117	7300		8 147
2370	7483	7667	7850	8033	8216	8400	8583	8766	8949	9132		9 166
71	9316	9499	9682	9865	0048	0231	0414	0598	0781	0964		183
72	3751147	1330	1513	1696	1879	2062	2245	2428	2611	2794		1 18
73	2977	3160	3343	3526	3709	3892	4075	4258	4441	4624		2 37
74	4807	4990	5173	5356	5539	5722	5905	6088	6270	6453		3 55
75	6636	6819	7002	7185	7367	7550	7733	7916	8099	8282		4 73
76	8464	8647	8830	9013	9195	9378	9561	9744	9926	0109		5 92
77	3760292	0475	0657	0840	1023	1205	1388	1571	1753	1936		6 110
78	2119	2301	2484	2666	2849	3032	3214	3397	3579	3762		7 128
79	3944	4127	4310	4492	4675	4857	5040	5222	5405	5587		8 146
2380	5770	5952	6135	6317	6499	6682	6864	7047	7229	7412		9 165
81	7594	7776	7959	8141	8323	8506	8688	8871	9053	9235		182
82	9418	9600	9782	9965	0147	0329	0511	0694	0876	1058		1 18
83	3771240	1423	1605	1787	1969	2152	2334	2516	2698	2880		2 36
84	3063	3245	3427	3609	3791	3973	4155	4338	4520	4702		3 55
85	4884	5066	5248	5430	5612	5794	5976	6158	6340	6522		4 73
86	6704	6886	7068	7250	7432	7614	7796	7978	8160	8342		5 91
87	8524	8706	8888	9070	9252	9434	9616	9798	9979	0161		6 109
88	3780343	0525	0707	0889	1071	1252	1434	1616	1798	1980		7 127
89	2161	2343	2525	2707	2889	3070	3252	3434	3616	3797		8 146
2390	3979	4161	4342	4524	4706	4887	5069	5251	5432	5614		9 164
91	5796	5977	6159	6341	6522	6704	6885	7067	7249	7430		181
92	7612	7793	7975	8156	8338	8519	8701	8882	9064	9245		1 18
93	9427	9608	9790	9971	0153	0334	0516	0697	0879	1060		2 36
94	3791241	1423	1604	1786	1967	2148	2330	2511	2692	2874		3 54
95	3055	3237	3418	3599	3780	3962	4143	4324	4506	4687		4 72
96	4868	5049	5231	5412	5593	5774	5956	6137	6318	6499		5 91
97	6680	6862	7043	7224	7405	7586	7767	7948	8130	8311		6 109
98	8492	8673	8854	9035	9216	9397	9578	9759	9940	0121		7 127
99	3800302	0484	0665	0846	1027	1208	1389	1570	1750	1931	181	8 145
												9 163
N.	0	1	2	3	4	5	6	7	8	9	D	Pts.

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
2400	3802112	2293	2474	2655	2836	3017	3198	3379	3560	3741	181	
01	3922	4102	4283	4464	4645	4826	5007	5188	5368	5549		
02	5730	5911	6092	6272	6453	6634	6815	6995	7176	7357		
03	7538	7718	7899	8080	8261	8441	8622	8803	8983	9164		
04	9345	9525	9706	9887	0067	0248	0428	0609	0790	0970		
05	3811151	1331	1512	1692	1873	2054	2234	2415	2595	2776		
06	2956	3137	3317	3498	3678	3859	4039	4220	4400	4580		
07	4761	4941	5122	5302	5483	5663	5843	6024	6204	6384		
08	6565	6745	6926	7106	7286	7467	7647	7827	8007	8188		
09	8368	8548	8729	8909	9089	9269	9450	9630	9810	9990		
2410	3820170	0351	0531	0711	0891	1071	1252	1432	1612	1792		
11	1972	2152	2332	2512	2693	2873	3053	3233	3413	3593		
12	3773	3953	4133	4313	4493	4673	4853	5033	5213	5393		
13	5573	5753	5933	6113	6293	6473	6653	6833	7013	7193		
14	7373	7553	7732	7912	8092	8272	8452	8632	8812	8992		
15	9171	9351	9531	9711	9891	0070	0250	0430	0610	0790		
16	3830969	1149	1329	1509	1688	1868	2048	2227	2407	2587		
17	2767	2946	3126	3306	3485	3665	3844	4024	4204	4383		
18	4563	4743	4922	5102	5281	5461	5640	5820	6000	6179		
19	6359	6538	6718	6897	7077	7256	7436	7615	7795	7974		
2420	8154	8333	8513	8692	8871	9051	9230	9410	9589	9769		
21	9948	0127	0307	0486	0665	0845	1024	1203	1383	1562		
22	3841741	1921	2100	2279	2459	2638	2817	2996	3176	3355		
23	3534	3713	3893	4072	4251	4430	4609	4789	4968	5147		
24	5326	5505	5684	5864	6043	6222	6401	6580	6759	6938		
25	7117	7297	7476	7655	7834	8013	8192	8371	8550	8729		
26	8908	9087	9266	9445	9624	9803	9982	0161	0340	0519		
27	3850698	0877	1056	1235	1413	1592	1771	1950	2129	2308		
28	2487	2666	2845	3023	3202	3381	3560	3739	3918	4096		
29	4275	4454	4633	4812	4990	5169	5348	5527	5705	5884		
2430	6063	6241	6420	6599	6778	6956	7135	7314	7492	7671		
31	7850	8028	8207	8386	8564	8743	8921	9100	9279	9457		
32	9636	9814	9993	0171	0350	0528	0707	0886	1064	1243		
33	3861421	1600	1778	1957	2135	2314	2492	2670	2849	3027		
34	3206	3384	3563	3741	3919	4098	4276	4455	4633	4811		
35	4990	5168	5346	5525	5703	5881	6060	6238	6416	6595		
36	6773	6951	7129	7308	7486	7664	7842	8021	8199	8377		
37	8555	8733	8912	9090	9268	9446	9624	9803	9981	0159		
38	3870337	0515	0693	0871	1049	1228	1406	1584	1762	1940		
39	2118	2296	2474	2652	2830	3008	3186	3364	3542	3720		
2440	3898	4076	4254	4432	4610	4788	4966	5144	5322	5500		
41	5678	5856	6034	6212	6389	6567	6745	6923	7101	7279		
42	7457	7634	7812	7990	8168	8346	8524	8701	8879	9057		
43	9235	9412	9590	9768	9946	0123	0301	0479	0657	0834		
44	3881012	1190	1367	1545	1723	1900	2078	2256	2433	2611		
45	2789	2966	3144	3321	3499	3677	3854	4032	4209	4387		
46	4565	4742	4920	5097	5275	5452	5630	5807	5985	6162		
47	6340	6517	6695	6872	7050	7227	7404	7582	7759	7937		
48	8114	8292	8469	8646	8824	9001	9178	9356	9533	9711		
49	9888	0065	0243	0420	0597	0774	0952	1129	1306	1484		
N.	0	1	2	3	4	5	6	7	8	9	D	Pro.

(36)

LOGARITHMS

N. 24500 L. 389

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
2450	3891661	1838	2015	2193	2370	2547	2724	2902	3079	3256		
51	3433	3610	3787	3965	4142	4319	4496	4673	4850	5028		
52	5205	5382	5559	5736	5913	6090	6267	6444	6621	6798		
53	6975	7153	7330	7507	7684	7861	8038	8215	8392	8569	177	177
54	8746	8923	9100	9276	9453	9630	9807	9984	0161	0338	1	18
55	3900515	0692	0869	1046	1223	1399	1576	1753	1930	2107	2	35
56	2284	2460	2637	2814	2991	3168	3344	3521	3698	3875	3	53
57	4052	4228	4405	4582	4759	4935	5112	5289	5465	5642	4	71
58	5819	5995	6172	6349	6525	6702	6879	7055	7232	7409	5	89
59	7585	7762	7939	8115	8292	8468	8645	8821	8998	9175	6	106
2460	9351	9528	9704	9881	0057	0234	0410	0587	0763	0940	7	124
61	3911116	1293	1469	1646	1822	1998	2175	2351	2528	2704	8	142
62	2880	3057	3233	3410	3586	3762	3940	4115	4291	4468	9	159
63	4644	4820	4997	5173	5349	5526	5702	5878	6055	6231		
64	6407	6583	6760	6936	7112	7288	7464	7641	7817	7993		
65	8169	8345	8522	8698	8874	9050	9226	9402	9578	9755	176	176
66	9931	0107	0283	0459	0635	0811	0987	1163	1339	1515	1	18
67	3921691	1868	2044	2220	2396	2572	2748	2924	3100	3276	2	35
68	3452	3628	3803	3979	4155	4331	4507	4683	4859	5035	3	53
69	5211	5387	5563	5739	5914	6090	6266	6442	6618	6794	4	70
2470	6970	7145	7321	7497	7673	7849	8024	8200	8376	8552	5	88
71	8727	8903	9079	9255	9430	9606	9782	9958	0133	0309	6	106
72	3930485	0660	0836	1012	1187	1363	1539	1714	1890	2066	7	123
73	2241	2417	2592	2768	2944	3119	3295	3470	3646	3821	8	141
74	3997	4172	4348	4524	4699	4875	5050	5226	5401	5577	9	158
75	5752	5928	6103	6278	6454	6629	6805	6980	7156	7331		
76	7506	7682	7857	8033	8208	8383	8559	8734	8909	9085	175	175
77	9260	9435	9611	9786	9961	0137	0312	0487	0662	0838	1	18
78	3941013	1188	1364	1539	1714	1889	2064	2240	2415	2590	2	35
79	2765	2940	3116	3291	3466	3641	3816	3991	4167	4342	3	53
2480	4517	4692	4867	5042	5217	5392	5567	5742	5918	6093	4	70
81	6268	6443	6618	6793	6968	7143	7318	7493	7668	7843	5	88
82	8018	8193	8368	8543	8718	8893	9068	9242	9417	9592	6	105
83	9767	9942	0117	0292	0467	0642	0817	0991	1166	1341	7	123
84	3951516	1691	1866	2040	2215	2390	2565	2740	2914	3089	8	140
85	3264	3439	3613	3788	3963	4138	4312	4487	4662	4837	9	158
86	5011	5186	5361	5535	5710	5885	6059	6234	6409	6583		
87	6758	6932	7107	7282	7456	7631	7805	7980	8155	8329		
88	8504	8678	8853	9027	9202	9376	9551	9725	9900	0074	174	174
89	3960249	0423	0598	0772	0947	1121	1296	1470	1645	1819	1	17
2490	1993	2168	2342	2517	2691	2865	3040	3214	3389	3563	2	35
91	3737	3912	4086	4260	4435	4609	4783	4958	5132	5306	3	52
92	5480	5655	5829	6003	6177	6352	6526	6700	6874	7049	4	70
93	7223	7397	7571	7745	7920	8094	8268	8442	8616	8790	5	87
94	8964	9139	9313	9487	9661	9835	0009	0183	0357	0531	6	104
95	3970706	0880	1054	1228	1402	1576	1750	1924	2098	2272	7	122
96	2446	2620	2794	2968	3142	3316	3490	3664	3838	4011	8	139
97	4185	4359	4533	4707	4881	5055	5229	5403	5577	5750	9	157
98	5924	6098	6272	6446	6620	6794	6967	7141	7315	7489		
99	7663	7836	8010	8184	8358	8531	8705	8879	9053	9226		
N.	0	1	2	3	4	5	6	7	8	9	D	Pts.

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
2500	3979400	9574	9748	9921	0095	0269	0442	0616	0790	0963		
01	3981137	1311	1484	1658	1831	2005	2179	2352	2526	2699		
02	2873	3047	3220	3394	3567	3741	3914	4088	4261	4435		
03	4608	4782	4956	5129	5302	5476	5649	5823	5996	6170		174
04	6343	6517	6690	6864	7037	7210	7384	7557	7731	7904		1 17
05	8077	8251	8424	8597	8771	8944	9117	9291	9464	9637		2 35
06	9811	9984	0157	0331	0504	0677	0850	1024	1197	1370		3 52
07	3991543	1717	1890	2063	2236	2409	2583	2756	2929	3102		4 70
08	3275	3448	3622	3795	3968	4141	4314	4487	4660	4834		5 87
09	5007	5180	5353	5526	5699	5872	6045	6218	6391	6564		6 104
2510	6737	6910	7083	7256	7429	7602	7775	7948	8121	8294	173	7 122
11	8467	8640	8813	8986	9159	9332	9505	9678	9851	0023		8 139
12	4000196	0369	0542	0715	0888	1061	1234	1406	1579	1752		9 157
13	1925	2098	2271	2443	2616	2789	2962	3134	3307	3480		
14	3653	3825	3998	4171	4344	4516	4689	4862	5035	5207		
15	5380	5553	5725	5898	6071	6243	6416	6588	6761	6934	173	1 17
16	7106	7279	7452	7624	7797	7969	8142	8314	8487	8660		2 35
17	8832	9005	9177	9350	9522	9695	9867	0040	0212	0385		3 52
18	4010557	0730	0902	1075	1247	1420	1592	1764	1937	2109		4 69
19	2282	2454	2626	2799	2971	3144	3316	3488	3661	3833		5 87
2520	4005	4178	4350	4522	4695	4867	5039	5212	5384	5556		6 104
21	5728	5901	6073	6245	6417	6590	6762	6934	7106	7279		7 121
22	7451	7623	7795	7967	8140	8312	8484	8656	8828	9000		8 138
23	9173	9345	9517	9689	9861	0033	0205	0377	0549	0721		9 156
24	4020894	1066	1238	1410	1582	1754	1926	2098	2270	2442	172	
25	2614	2786	2958	3130	3302	3474	3646	3818	3990	4162		
26	4333	4505	4677	4849	5021	5193	5365	5537	5709	5881		
27	6052	6224	6396	6568	6740	6912	7083	7255	7427	7599	172	1 17
28	7771	7942	8114	8286	8458	8630	8801	8973	9145	9317		2 34
29	9488	9660	9832	0003	0175	0347	0519	0690	0862	1034		3 52
2530	4031205	1377	1549	1720	1892	2063	2235	2407	2578	2750		4 69
31	2921	3093	3265	3436	3608	3779	3951	4122	4294	4465		5 86
32	4637	4808	4980	5152	5323	5495	5666	5838	6009	6180		6 103
33	6352	6523	6695	6866	7038	7209	7381	7552	7723	7895		7 120
34	8066	8237	8409	8580	8752	8923	9094	9266	9437	9608		8 138
35	9780	9951	0122	0294	0465	0636	0807	0979	1150	1321		9 155
36	4041492	1664	1835	2006	2177	2349	2520	2691	2862	3033		
37	3205	3376	3547	3718	3889	4061	4232	4403	4574	4745		
38	4916	5087	5258	5429	5601	5772	5943	6114	6285	6456		
39	6627	6798	6969	7140	7311	7482	7653	7824	7995	8166	171	1 17
2540	8337	8508	8679	8850	9021	9192	9363	9534	9705	9876		2 34
41	4050047	0218	0388	0559	0730	0901	1072	1243	1414	1585		3 51
42	1755	1926	2097	2268	2439	2610	2780	2951	3122	3293		4 68
43	3464	3634	3805	3976	4147	4317	4488	4659	4830	5000		5 86
44	5171	5342	5512	5683	5854	6025	6195	6366	6537	6707		6 103
45	6878	7049	7219	7390	7560	7731	7902	8072	8243	8413		7 120
46	8584	8755	8925	9096	9266	9437	9607	9778	9948	0119		8 137
47	4060289	0460	0630	0801	0971	1142	1312	1483	1653	1824		9 154
48	1994	2165	2335	2506	2676	2846	3017	3187	3358	3528		
49	3698	3869	4039	4209	4380	4550	4721	4891	5061	5231		
N.	0	1	2	3	4	5	6	7	8	9	D	Pts.

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
2550	4065402	5572	5742	5913	6083	6253	6424	6594	6764	6934		
51	7105	7275	7445	7615	7786	7956	8126	8296	8466	8636		
52	8807	8977	9147	9317	9487	9658	9828	9998	0168	0338		
53	4070508	0678	0848	1018	1189	1359	1529	1699	1869	2039		
54	2209	2379	2549	2719	2889	3059	3229	3399	3569	3739	170	170
55	3909	4079	4249	4419	4589	4759	4929	5099	5269	5439	1	17
56	5608	5778	5948	6118	6288	6458	6628	6798	6968	7137	2	34
57	7307	7477	7647	7817	7987	8156	8326	8496	8666	8836	3	51
58	9005	9175	9345	9515	9684	9854	0024	0194	0363	0533	4	68
59	4080703	0873	1042	1212	1382	1551	1721	1891	2060	2230	5	85
2560	2400	2569	2739	2909	3078	3248	3417	3587	3757	3926	6	102
61	4096	4265	4435	4604	4774	4944	5113	5283	5452	5622	7	119
62	5791	5961	6130	6300	6469	6639	6808	6978	7147	7317	8	136
63	7486	7656	7825	7994	8164	8333	8503	8672	8841	9011	9	153
64	9180	9350	9519	9688	9858	0027	0196	0366	0535	0704		
65	4090874	1043	1212	1382	1551	1720	1889	2059	2228	2397	169	169
66	2567	2736	2905	3074	3243	3413	3582	3751	3920	4089	1	17
67	4259	4428	4597	4766	4935	5105	5274	5443	5612	5781	2	34
68	5950	6119	6288	6458	6627	6796	6965	7134	7303	7472	3	51
69	7641	7810	7979	8148	8317	8486	8655	8824	8993	9162	4	68
2570	9331	9500	9669	9838	0007	0176	0345	0514	0683	0852	5	85
71	4101021	1190	1359	1527	1696	1865	2034	2203	2372	2541	6	101
72	2710	2878	3047	3216	3385	3554	3723	3891	4060	4229	7	118
73	4398	4567	4735	4904	5073	5242	5410	5579	5748	5917	8	135
74	6085	6254	6423	6592	6760	6929	7098	7266	7435	7604	9	152
75	7772	7941	8110	8278	8447	8616	8784	8953	9121	9290		
76	9459	9627	9796	9964	0133	0301	0470	0639	0807	0976	168	168
77	4111144	1313	1481	1650	1818	1987	2155	2324	2492	2661	1	17
78	2829	2998	3166	3334	3503	3671	3840	4008	4177	4345	2	34
79	4513	4682	4850	5019	5187	5355	5524	5692	5860	6029	3	50
2580	6197	6365	6534	6702	6870	7039	7207	7375	7543	7712	4	67
81	7880	8048	8217	8385	8553	8721	8890	9058	9226	9394	5	84
82	9562	9731	9899	0067	0235	0403	0571	0740	0908	1076	6	101
83	4121244	1412	1580	1748	1917	2085	2253	2421	2589	2757	7	118
84	2925	3093	3261	3429	3597	3765	3933	4101	4269	4437	8	134
85	4605	4773	4941	5109	5277	5445	5613	5781	5949	6117	9	151
86	6285	6453	6621	6789	6957	7125	7293	7461	7629	7796		
87	7964	8132	8300	8468	8636	8804	8971	9139	9307	9475		
88	9643	9811	9978	0146	0314	0482	0649	0817	0985	1153		
89	4131321	1488	1656	1824	1991	2159	2327	2495	2662	2830	167	167
2590	2998	3165	3333	3501	3668	3836	4004	4171	4339	4507	1	17
91	4674	4842	5009	5177	5345	5512	5680	5847	6015	6182	2	33
92	6350	6518	6685	6853	7020	7188	7355	7523	7690	7858	3	50
93	8025	8193	8360	8528	8695	8863	9030	9197	9365	9532	4	67
94	9700	9867	0035	0202	0369	0537	0704	0872	1039	1206	5	84
95	4141374	1541	1708	1876	2043	2210	2378	2545	2712	2880	6	100
96	3047	3214	3381	3549	3716	3883	4051	4218	4385	4552	7	117
97	4719	4887	5054	5221	5388	5556	5723	5890	6057	6224	8	134
98	6391	6559	6726	6893	7060	7227	7394	7561	7729	7896	9	150
99	8063	8230	8397	8564	8731	8898	9065	9232	9399	9566	167	167
N.	0	1	2	3	4	5	6	7	8	9	D	Pts.

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
2600	4149733	9901	0068	0235	0402	0569	0736	0903	1070	1237	167	
01	4151404	1570	1737	1904	2071	2238	2405	2572	2739	2906		
02	3073	3240	3407	3574	3741	3907	4074	4241	4408	4575		
03	4742	4909	5075	5242	5409	5576	5743	5909	6076	6243		
04	6410	6577	6743	6910	7077	7244	7410	7577	7744	7911		167
05	8077	8244	8411	8577	8744	8911	9077	9244	9411	9577		1 17
06	9744	9911	0077	0244	0411	0577	0744	0911	1077	1244		2 33
07	4161410	1577	1743	1910	2077	2243	2410	2576	2743	2909		3 50
08	3076	3242	3409	3575	3742	3908	4075	4241	4408	4574		4 67
09	4741	4907	5074	5240	5407	5573	5739	5906	6072	6239		5 84
2610	6405	6571	6738	6904	7071	7237	7403	7570	7736	7902		6 100
11	8069	8235	8401	8568	8734	8900	9067	9233	9399	9565		7 117
12	9732	9898	0064	0231	0397	0563	0729	0895	1062	1228		8 134
13	4171394	1560	1726	1893	2059	2225	2391	2557	2724	2890		9 150
14	3056	3222	3388	3554	3720	3886	4053	4219	4385	4551		
15	4717	4883	5049	5215	5381	5547	5713	5879	6045	6211	166	166
16	6377	6543	6709	6875	7041	7207	7373	7539	7705	7871		1 17
17	8037	8203	8369	8535	8701	8867	9033	9199	9365	9531		2 33
18	9696	9862	0028	0194	0360	0526	0692	0857	1023	1189		3 50
19	4181355	1521	1687	1852	2018	2184	2350	2516	2681	2847		4 66
2620	3013	3179	3344	3510	3676	3842	4007	4173	4339	4505		5 83
21	4670	4836	5002	5167	5333	5499	5664	5830	5996	6161		6 100
22	6327	6493	6658	6824	6989	7155	7321	7486	7652	7817		7 116
23	7983	8148	8314	8480	8645	8811	8976	9142	9307	9473		8 133
24	9638	9804	9969	0135	0300	0466	0631	0797	0962	1128		9 149
25	4191293	1459	1624	1789	1955	2120	2286	2451	2616	2782		
26	2947	3113	3278	3443	3609	3774	3939	4105	4270	4435		
27	4601	4766	4931	5097	5262	5427	5593	5758	5923	6088		165
28	6254	6419	6584	6749	6915	7080	7245	7410	7575	7741		1 17
29	7906	8071	8236	8401	8567	8732	8897	9062	9227	9392		2 33
2630	3557	3723	3888	4053	4218	4383	4548	4713	4878	5043		3 50
31	4201208	1374	1539	1704	1869	2034	2199	2364	2529	2694		4 66
32	2859	3024	3189	3354	3519	3684	3849	4014	4179	4344		5 83
33	4509	4674	4838	5003	5168	5333	5498	5663	5828	5993		6 99
34	6158	6323	6487	6652	6817	6982	7147	7312	7477	7641		7 116
35	7806	7971	8136	8301	8465	8630	8795	8960	9125	9289		8 132
36	9454	9619	9784	9948	0113	0278	0442	0607	0772	0937		9 149
37	4211101	1266	1431	1595	1760	1925	2089	2254	2419	2583		
38	2748	2913	3077	3242	3406	3571	3736	3900	4065	4229		
39	4394	4558	4723	4888	5052	5217	5381	5546	5710	5875		164
2640	6039	6204	6368	6533	6697	6862	7026	7191	7355	7520		1 16
41	7684	7848	8013	8177	8342	8506	8671	8835	8999	9164		2 33
42	9328	9493	9657	9821	9986	0150	0314	0479	0643	0807		3 49
43	4220972	1136	1300	1465	1629	1793	1957	2122	2286	2450		4 66
44	2615	2779	2943	3107	3271	3436	3600	3764	3928	4093		5 82
45	4257	4421	4585	4749	4913	5078	5242	5406	5570	5734		6 98
46	5898	6063	6227	6391	6555	6719	6883	7047	7211	7375		7 115
47	7539	7703	7868	8032	8196	8360	8524	8688	8852	9016		8 131
48	9180	9344	9508	9672	9836	0000	0164	0328	0492	0656		9 148
49	4230820	0984	1147	1311	1475	1639	1803	1967	2131	2295	164	
N.	0	1	2	3	4	5	6	7	8	9	D	Pts.

(40)

LOGARITHMS

N. 26500 L. 423

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
2650	4232459	2623	2786	2950	3114	3278	3442	3606	3770	3933		
51	4097	4261	4425	4589	4753	4916	5080	5244	5408	5571		
52	5735	5899	6063	6226	6390	6554	6718	6881	7045	7209		
53	7372	7536	7700	7864	8027	8191	8355	8518	8682	8846		
54	9009	9173	9336	9500	9664	9827	9991	0154	0318	0482		
55	4240645	0809	0972	1136	1300	1463	1627	1790	1954	2117		
56	2281	2444	2608	2771	2935	3098	3262	3425	3589	3752		
57	3916	4079	4242	4406	4569	4733	4896	5060	5223	5386		
58	5550	5713	5877	6040	6203	6367	6530	6693	6857	7020		
59	7183	7347	7510	7673	7837	8000	8163	8327	8490	8653		
2660	8816	8980	9143	9306	9469	9633	9796	9959	0122	0286		
61	4250449	0612	0775	0938	1102	1265	1428	1591	1754	1917		
62	2081	2244	2407	2570	2733	2896	3059	3222	3385	3549		
63	3712	3875	4038	4201	4364	4527	4690	4853	5016	5179		
64	5342	5505	5668	5831	5994	6157	6320	6483	6646	6809		
65	6972	7135	7298	7461	7624	7787	7950	8113	8276	8439		
66	8601	8764	8927	9090	9253	9416	9579	9742	9904	0067		
67	4260230	0393	0556	0719	0881	1044	1207	1370	1533	1695		
68	1858	2021	2184	2347	2509	2672	2835	2998	3160	3323		
69	3486	3648	3811	3974	4137	4299	4462	4625	4787	4950		
2670	5113	5275	5438	5601	5763	5926	6088	6251	6414	6576		
71	6739	6901	7064	7227	7389	7552	7714	7877	8039	8202		
72	8365	8527	8690	8852	9015	9177	9340	9502	9665	9827		
73	9990	0152	0315	0477	0639	0802	0964	1127	1289	1452		
74	4271614	1776	1939	2101	2264	2426	2588	2751	2913	3076		
75	3238	3400	3563	3725	3887	4050	4212	4374	4536	4699		
76	4861	5023	5186	5348	5510	5672	5835	5997	6159	6321		
77	6484	6646	6808	6970	7133	7295	7457	7619	7781	7944		
78	8106	8268	8430	8592	8754	8917	9079	9241	9403	9565		
79	9727	9889	0051	0213	0376	0538	0700	0862	1024	1186		
2680	4281348	1510	1672	1834	1996	2158	2320	2482	2644	2806		
81	2968	3130	3292	3454	3616	3778	3940	4102	4264	4426		
82	4588	4750	4912	5073	5235	5397	5559	5721	5883	6045		
83	6207	6369	6530	6692	6854	7016	7178	7340	7501	7663		
84	7825	7987	8149	8311	8472	8634	8796	8958	9119	9281		
85	9443	9605	9766	9928	0090	0252	0413	0575	0737	0898		
86	4291060	1222	1383	1545	1707	1868	2030	2192	2353	2515		
87	2677	2838	3000	3162	3323	3485	3646	3808	3969	4131		
88	4293	4454	4616	4777	4939	5100	5262	5423	5585	5747		
89	5908	6070	6231	6393	6554	6715	6877	7038	7200	7361		
2690	7523	7684	7846	8007	8169	8330	8491	8653	8814	8976		
91	9137	9298	9460	9621	9782	9944	0105	0267	0428	0589		
92	4300751	0912	1073	1235	1396	1557	1718	1880	2041	2202		
93	2364	2525	2686	2847	3009	3170	3331	3492	3653	3815		
94	3976	4137	4298	4460	4621	4782	4943	5104	5265	5427		
95	5588	5749	5910	6071	6232	6393	6554	6716	6877	7038		
96	7199	7360	7521	7682	7843	8004	8165	8326	8487	8648		
97	8809	8970	9132	9293	9454	9615	9776	9937	0098	0258		
98	4310419	0580	0741	0902	1063	1224	1385	1546	1707	1868		
99	2029	2190	2351	2512	2672	2833	2994	3155	3316	3477		
N.	0	1	2	3	4	5	6	7	8	9	D	Pts.

N	O	I	2	3	4	5	6	7	8	9	D	Pro
2700	4313638	3798	3959	4120	4281	4442	4603	4763	4924	5085		
01	5246	5407	5567	5728	5889	6050	6210	6371	6532	6693		
02	6853	7014	7175	7336	7496	7657	7818	7978	8139	8300		
03	8460	8621	8782	8942	9103	9264	9424	9585	9746	9906		
04	4320067	0227	0388	0549	0709	0870	1030	1191	1352	1512		
05	1673	1833	1994	2154	2315	2475	2636	2796	2957	3117		
06	3278	3438	3599	3759	3920	4080	4241	4401	4562	4722		161
07	4883	5043	5203	5364	5524	5685	5845	6005	6166	6326		1 16
08	6487	6647	6807	6968	7128	7288	7449	7609	7769	7930		2 32
09	8090	8250	8411	8571	8731	8892	9052	9212	9372	9533		3 48
2710	9693	9853	0013	0174	0334	0494	0654	0815	0975	1135		4 64
11	4331295	1455	1616	1776	1936	2096	2256	2416	2577	2737		5 81
12	2897	3057	3217	3377	3537	3697	3858	4018	4178	4338		6 97
13	4498	4658	4818	4978	5138	5298	5458	5618	5778	5938		7 113
14	6098	6258	6418	6578	6738	6898	7058	7218	7378	7538	160	8 129
15	7698	7858	8018	8178	8338	8498	8658	8818	8978	9138		9 145
16	9298	9458	9617	9777	9937	0097	0257	0417	0577	0737		
17	4340896	1056	1216	1376	1536	1696	1855	2015	2175	2335		
18	2495	2654	2814	2974	3134	3293	3453	3613	3773	3932		
19	4092	4252	4412	4571	4731	4891	5050	5210	5370	5529		
2720	5689	5849	6008	6168	6328	6487	6647	6807	6966	7126		160
21	7285	7445	7605	7764	7924	8083	8243	8403	8562	8722		1 16
22	8881	9041	9200	9360	9519	9679	9838	9998	0157	0317		2 32
23	4350476	0636	0795	0955	1114	1274	1433	1593	1752	1912		3 48
24	2071	2230	2390	2549	2709	2868	3028	3187	3346	3506		4 64
25	3665	3824	3984	4143	4303	4462	4621	4781	4940	5099		5 80
26	5259	5418	5577	5736	5896	6055	6214	6374	6533	6692		6 96
27	6851	7011	7170	7329	7488	7648	7807	7966	8125	8284		7 112
28	8444	8603	8762	8921	9080	9240	9399	9558	9717	9876		8 128
29	4260035	0194	0254	0513	0672	0831	0990	1149	1308	1467		9 144
30	2626	1786	1945	2104	2263	2422	2581	2740	2899	3058	159	
31	3217	3376	3535	3694	3853	4012	4171	4330	4489	4648		
32	4807	4966	5125	5284	5443	5602	5761	5920	6078	6237		
33	6396	6555	6714	6873	7032	7191	7350	7509	7667	7826		
34	7985	8144	8303	8462	8620	8779	8938	9097	9256	9415		
35	9573	9732	9891	0050	0208	0367	0526	0685	0843	1002		159
36	4371161	1320	1478	1637	1796	1955	2113	2272	2431	2589		1 16
37	2748	2907	3065	3224	3383	3541	3700	3859	4017	4176		2 32
38	4334	4493	4652	4810	4969	5127	5286	5445	5603	5762		3 48
39	5920	6079	6237	6396	6555	6713	6872	7030	7189	7347		4 64
2740	7506	7664	7823	7981	8140	8298	8457	8615	8773	8932		5 80
41	9090	9249	9407	9566	9724	9883	0041	0199	0358	0516		6 95
42	4380675	0833	0991	1150	1308	1466	1625	1783	1941	2100		7 111
43	2258	2416	2575	2733	2891	3050	3208	3366	3525	3683		8 127
44	3841	3999	4158	4316	4474	4632	4791	4949	5107	5265		9 143
45	5423	5582	5740	5898	6056	6214	6373	6531	6689	6847		
46	7005	7163	7322	7480	7638	7796	7954	8112	8270	8428		
47	8587	8745	8903	9061	9219	9377	9535	9693	9851	0009		
48	4390167	0325	0483	0641	0799	0957	1115	1273	1431	1589	158	
49	1747	1905	2063	2221	2379	2537	2695	2853	3011	3169		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

(42)		LOGARITHMS									N. 27500 L. 439	
N	0	1	2	3	4	5	6	7	8	9	D	Pro
2750	4393327	3485	3643	3801	3959	4116	4274	4432	4590	4748		
51	4906	5064	5222	5379	5537	5695	5853	6011	6169	6326		
52	6484	6642	6800	6958	7115	7273	7431	7589	7747	7904		
53	8062	8220	8378	8535	8693	8851	9009	9166	9324	9482		
54	9639	9797	9955	0112	0270	0428	0585	0743	0901	1058		
55	4401216	1374	1531	1689	1847	2004	2162	2319	2477	2635		
56	2792	2950	3107	3265	3422	3580	3738	3895	4053	4210		158
57	4368	4525	4683	4840	4998	5155	5313	5470	5628	5785		156
58	5943	6100	6258	6415	6572	6730	6887	7045	7202	7360		32
59	7517	7674	7832	7989	8147	8304	8461	8619	8776	8933		47
2760	9091	9248	9406	9563	9720	9878	0035	0192	0349	0507		63
61	4410664	0821	0979	1136	1293	1450	1608	1765	1922	2080		79
62	2237	2394	2551	2708	2866	3023	3180	3337	3494	3652		95
63	3809	3966	4123	4280	4438	4595	4752	4909	5066	5223		111
64	5380	5538	5695	5852	6009	6166	6323	6480	6637	6794		126
65	6951	7108	7265	7423	7580	7737	7894	8051	8208	8365		142
66	8522	8679	8836	8993	9150	9307	9464	9621	9778	9935		
67	4420092	0249	0405	0562	0719	0876	1033	1190	1347	1504	157	
68	1661	1818	1975	2132	2288	2445	2602	2759	2916	3073		
69	3230	3386	3543	3700	3857	4014	4171	4327	4484	4641		
2770	4798	4954	5111	5268	5425	5582	5738	5895	6052	6209		
71	6365	6522	6679	6835	6992	7149	7306	7462	7619	7776		157
72	7932	8089	8246	8402	8559	8716	8872	9029	9185	9342		16
73	9499	9655	9812	9969	0125	0282	0438	0595	0751	0908		31
74	4431065	1221	1378	1534	1691	1847	2004	2160	2317	2473		47
75	2630	2786	2943	3099	3256	3412	3569	3725	3882	4038		63
76	4195	4351	4507	4664	4820	4977	5133	5290	5446	5602		79
77	5759	5915	6072	6228	6384	6541	6697	6853	7010	7166		94
78	7322	7479	7635	7791	7948	8104	8260	8417	8573	8729		110
79	8885	9042	9198	9354	9511	9667	9823	9979	0136	0292		126
2780	4440448	0604	0760	0917	1073	1229	1385	1541	1697	1854		141
81	2010	2166	2322	2478	2635	2791	2947	3103	3259	3415		
82	3571	3727	3883	4040	4196	4352	4508	4664	4820	4976		
83	5132	5288	5444	5600	5756	5912	6068	6224	6380	6536		156
84	6692	6848	7004	7160	7316	7472	7628	7784	7940	8096		
85	8252	8408	8564	8720	8876	9032	9188	9343	9499	9655		
86	9811	9967	0123	0279	0435	0590	0746	0902	1058	1214		156
87	4451370	1526	1681	1837	1993	2149	2305	2460	2616	2772		16
88	2928	3083	3239	3395	3551	3706	3862	4018	4174	4329		31
89	4485	4641	4797	4952	5108	5264	5419	5575	5731	5886		47
2790	6042	6198	6353	6509	6665	6820	6976	7132	7287	7443		62
91	7598	7754	7910	8065	8221	8376	8532	8687	8843	8999		78
92	9154	9310	9465	9621	9776	9932	0087	0243	0398	0554		94
93	4460709	0865	1020	1176	1331	1487	1642	1798	1953	2109		109
94	2264	2419	2575	2730	2886	3041	3197	3352	3507	3663		125
95	3818	3974	4129	4284	4440	4595	4750	4906	5061	5216		140
96	5372	5527	5682	5838	5993	6148	6304	6459	6614	6769		
97	6925	7080	7235	7390	7546	7701	7856	8011	8167	8322		
98	8477	8632	8788	8943	9098	9253	9408	9563	9719	9874		
99	4470029	0184	0339	0494	0650	0805	0960	1115	1270	1425		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

N. 28000 L. 447 OF NUMBERS. (43)

N	O	I	2	3	4	5	6	7	8	9	D	Pro
2800	4471580	1735	1891	2046	2201	2356	2511	2666	2821	2976	155	
01	3131	3286	3441	3596	3751	3906	4061	4216	4371	4526		
02	4681	4836	4991	5146	5301	5456	5611	5766	5921	6076		
03	6231	6386	6541	6696	6851	7006	7161	7315	7470	7625		
04	7780	7935	8090	8245	8400	8554	8709	8864	9019	9174		
05	9329	9483	9638	9793	9948	0103	0258	0412	0567	0722		155
06	4480877	1031	1186	1341	1496	1650	1805	1960	2115	2269		1 16
07	2424	2579	2734	2888	3043	3198	3352	3507	3662	3816		2 31
08	3971	4126	4280	4435	4590	4744	4899	5054	5208	5363		3 47
09	5517	5672	5827	5981	6136	6290	6445	6600	6754	6909		4 62
2810	7063	7218	7372	7527	7681	7836	7990	8145	8299	8454	154	5 78
11	8608	8763	8917	9072	9226	9381	9535	9690	9844	9999		6 93
12	4490153	0308	0462	0616	0771	0925	1080	1234	1389	1543		7 109
13	1697	1852	2006	2160	2315	2469	2624	2778	2932	3087		8 124
14	3241	3395	3550	3704	3858	4013	4167	4321	4475	4630		9 140
15	4784	4938	5093	5247	5401	5555	5710	5864	6018	6172		
16	6327	6481	6635	6789	6943	7098	7252	7406	7560	7714		
17	7868	8023	8177	8331	8485	8639	8793	8948	9102	9256		
18	9410	9564	9718	9872	0026	0180	0334	0489	0643	0797		
19	4500951	1105	1259	1413	1567	1721	1875	2029	2183	2337		
2820	2491	2645	2799	2953	3107	3261	3415	3569	3723	3877	154	154
21	4031	4185	4339	4493	4647	4801	4954	5108	5262	5416		1 15
22	5570	5724	5878	6032	6186	6340	6493	6647	6801	6955		2 31
23	7109	7263	7416	7570	7724	7878	8032	8186	8339	8493		3 46
24	8647	8801	8954	9108	9262	9416	9570	9723	9877	0031		4 62
25	4510185	0338	0492	0646	0799	0953	1107	1261	1414	1568		5 77
26	1722	1875	2029	2183	2336	2490	2644	2797	2951	3104		6 92
27	3258	3412	3565	3719	3873	4026	4180	4333	4487	4640		7 108
28	4794	4948	5101	5255	5408	5562	5715	5869	6022	6176		8 123
29	6329	6483	6636	6790	6943	7097	7250	7404	7557	7711		9 139
2830	7864	8018	8171	8325	8478	8632	8785	8938	9092	9245	153	
31	9399	9552	9705	9859	0012	0166	0319	0472	0626	0779		
32	4520932	1086	1239	1393	1546	1699	1853	2006	2159	2312		
33	2466	2619	2772	2926	3079	3232	3385	3539	3692	3845		
34	3998	4152	4305	4458	4611	4765	4918	5071	5224	5377		
35	5531	5684	5837	5990	6143	6297	6450	6603	6756	6909		
36	7062	7215	7369	7522	7675	7828	7981	8134	8287	8440		
37	8593	8746	8900	9053	9206	9359	9512	9665	9818	9971		153
38	4530124	0277	0430	0583	0736	0889	1042	1195	1348	1501		1 15
39	1654	1807	1960	2113	2266	2419	2572	2725	2878	3030		2 31
2840	3183	3336	3489	3642	3795	3948	4101	4254	4407	4559	153	3 46
41	4712	4865	5018	5171	5324	5477	5629	5782	5935	6088		4 61
42	6241	6394	6546	6699	6852	7005	7158	7310	7463	7616		5 77
43	7769	7921	8074	8227	8380	8532	8685	8838	8990	9143		6 92
44	9296	9449	9601	9754	9907	0059	0212	0365	0517	0670		7 107
45	4540823	0975	1128	1281	1433	1586	1739	1891	2044	2196		8 122
46	2349	2502	2654	2807	2959	3112	3264	3417	3570	3722		9 138
47	3875	4027	4180	4332	4485	4637	4790	4942	5095	5247		
48	5400	5552	5705	5857	6010	6162	6315	6467	6620	6772		
49	6924	7077	7229	7382	7534	7687	7839	7991	8144	8296		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

(44)

LOGARITHMS

N. 28500 L. 454

N	O	I	2	3	4	5	6	7	8	9	D	Pro
2850	4548449	8601	8753	8906	9058	9210	9363	9515	9668	9820		
51	9972	0125	0277	0429	0581	0734	0886	1038	1191	1343		
52	4551495	1647	1800	1952	2104	2257	2409	2561	2713	2865		
53	3018	3170	3322	3474	3627	3779	3931	4083	4235	4388		
54	4540	4692	4844	4996	5148	5300	5453	5605	5757	5909		
55	6061	6213	6365	6517	6670	6822	6974	7126	7278	7430		
56	7582	7734	7886	8038	8190	8343	8494	8646	8798	8950		
57	9102	9254	9406	9558	9710	9862	0014	0166	0318	0470		
58	4560622	0774	0926	1078	1230	1382	1534	1686	1838	1990	152	15
59	2142	2293	2445	2597	2749	2901	3053	3205	3357	3508	2	30
2860	3660	3812	3964	4116	4268	4420	4571	4723	4875	5027	3	46
61	5179	5330	5482	5634	5786	5938	6089	6241	6393	6545	4	61
62	6696	6848	7000	7152	7303	7455	7607	7758	7910	8062	5	76
63	8213	8365	8517	8669	8820	8972	9124	9275	9427	9578	6	91
64	9730	9882	0033	0185	0337	0488	0640	0791	0943	1095	7	106
65	4571246	1398	1549	1701	1853	2004	2156	2307	2459	2610	8	121
66	2762	2913	3065	3216	3368	3519	3671	3822	3974	4125	9	137
67	4277	4428	4580	4731	4883	5034	5186	5337	5489	5640		
68	5791	5943	6094	6246	6397	6549	6700	6851	7003	7154		
69	7305	7457	7608	7760	7911	8062	8214	8365	8516	8668		
2870	8819	8970	9122	9273	9424	9576	9727	9878	0029	0181		
71	4580332	0483	0634	0786	0937	1088	1239	1391	1542	1693	151	15
72	1844	1996	2147	2298	2449	2600	2752	2903	3054	3205	2	30
73	3356	3507	3659	3810	3961	4112	4263	4414	4565	4717	3	45
74	4868	5019	5170	5321	5472	5623	5774	5925	6076	6227	4	60
75	6378	6530	6681	6832	6983	7134	7285	7436	7587	7738	5	76
76	7889	8040	8191	8342	8493	8644	8795	8946	9097	9248	6	91
77	9399	9550	9701	9851	0002	0153	0304	0455	0606	0757	7	106
78	4590908	1059	1210	1361	1511	1662	1813	1964	2115	2266	8	121
79	2417	2567	2718	2869	3020	3171	3322	3472	3623	3774	9	136
2880	3925	4076	4226	4377	4528	4679	4830	4980	5131	5282		
81	5433	5583	5734	5885	6036	6186	6337	6488	6638	6789		
82	6940	7090	7241	7392	7542	7693	7844	7994	8145	8296		
83	8446	8597	8748	8898	9049	9200	9350	9501	9651	9802		
84	9953	0103	0254	0404	0555	0705	0856	1007	1157	1308		
85	4601458	1609	1759	1910	2060	2211	2361	2512	2662	2813		
86	2963	3114	3264	3415	3565	3716	3866	4017	4167	4317		
87	4468	4618	4769	4919	5070	5220	5370	5521	5671	5822		
88	5972	6122	6273	6423	6573	6724	6874	7024	7175	7325		
89	7475	7626	7776	7926	8077	8227	8377	8528	8678	8828		
2890	8978	9129	9279	9429	9579	9730	9880	0030	0180	0331		
91	4610481	0631	0781	0932	1082	1232	1382	1532	1683	1833		
92	1983	2133	2283	2433	2584	2734	2884	3034	3184	3334		
93	3484	3634	3785	3935	4085	4235	4385	4535	4685	4835		
94	4985	5135	5285	5435	5585	5736	5886	6036	6186	6336		
95	6486	6636	6786	6936	7086	7236	7386	7536	7686	7836		
96	7986	8136	8285	8435	8585	8735	8885	9035	9185	9335		
97	9485	9635	9785	9935	0085	0234	0384	0534	0684	0834		
98	4620984	1134	1284	1433	1583	1733	1883	2033	2183	2332		
99	2482	2632	2782	2932	3082	3231	3381	3531	3680	3830		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

N	O	I	2	3	4	5	6	7	8	9	D	Pro
2900	4623980	4130	4279	4429	4579	4729	4878	5028	5178	5328		
01	5477	5627	5777	5926	6076	6226	6375	6525	6675	6824		
02	6974	7124	7273	7423	7573	7722	7872	8022	8171	8321		
03	8470	8620	8770	8919	9069	9218	9368	9517	9667	9817		
04	9966	0116	0265	0415	0564	0714	0863	1013	1162	1312		
05	4631461	1611	1760	1910	2059	2209	2358	2508	2657	2807		
06	2956	3106	3255	3404	3554	3703	3853	4002	4152	4301		150
07	4450	4600	4749	4898	5048	5197	5347	5496	5645	5795		15
08	5944	6093	6243	6392	6541	6691	6840	6989	7139	7288		30
09	7437	7587	7736	7885	8034	8184	8333	8482	8631	8781		45
2910	8930	9079	9228	9378	9527	9676	9825	9974	0124	0273		60
11	4640422	0571	0720	0870	1019	1168	1317	1466	1615	1765		75
12	1914	2063	2212	2361	2510	2659	2808	2958	3107	3256		90
13	3405	3554	3703	3852	4001	4150	4299	4448	4597	4746		105
14	4895	5045	5194	5343	5492	5641	5790	5939	6088	6237	149	120
15	6386	6535	6684	6833	6981	7130	7279	7428	7577	7726		135
16	7875	8024	8173	8322	8471	8620	8769	8918	9067	9215		
17	9364	9513	9662	9811	9960	0109	0258	0406	0555	0704		
18	4650853	1002	1151	1299	1448	1597	1746	1895	2043	2192		
19	2341	2490	2639	2787	2936	3085	3234	3382	3531	3680		
2920	3829	3977	4126	4275	4423	4572	4721	4870	5018	5167		
21	5316	5464	5613	5762	5910	6059	6208	6356	6505	6653		149
22	6802	6951	7099	7248	7397	7545	7694	7842	7991	8140		15
23	8288	8437	8585	8734	8882	9031	9180	9328	9477	9625		30
24	9774	9922	0071	0219	0368	0516	0665	0813	0962	1110		45
25	4661259	1407	1556	1704	1853	2001	2149	2298	2446	2595		60
26	2743	2892	3040	3188	3337	3485	3634	3782	3930	4079		75
27	4227	4376	4524	4672	4821	4969	5117	5266	5414	5562		89
28	5711	5859	6007	6156	6304	6452	6601	6749	6897	7045		104
29	7194	7342	7490	7639	7787	7935	8083	8232	8380	8528		119
2930	8676	8824	8973	9121	9269	9417	9565	9714	9862	0010		134
31	4670158	0306	0455	0603	0751	0899	1047	1195	1343	1492		
32	1640	1788	1936	2084	2232	2380	2528	2676	2824	2973		
33	3121	3269	3417	3565	3713	3861	4009	4157	4305	4453		
34	4601	4749	4897	5045	5193	5341	5489	5637	5785	5933	148	
35	6081	6229	6377	6525	6673	6821	6969	7117	7265	7413		148
36	7561	7708	7856	8004	8152	8300	8448	8596	8744	8892		15
37	9039	9187	9335	9483	9631	9779	9927	0074	0222	0370		30
38	4680518	0666	0814	0961	1109	1257	1405	1553	1700	1848		44
39	1996	2144	2291	2439	2587	2735	2882	3030	3178	3326		59
2940	3473	3621	3769	3916	4064	4212	4360	4507	4655	4803		74
41	4950	5098	5246	5393	5541	5689	5836	5984	6131	6279		89
42	6427	6574	6722	6870	7017	7165	7312	7460	7607	7755		104
43	7903	8050	8198	8345	8493	8640	8788	8935	9083	9231		118
44	9378	9526	9673	9821	9968	0116	0263	0411	0558	0706		133
45	4690853	1000	1148	1295	1443	1590	1738	1885	2033	2180		
46	2327	2475	2622	2770	2917	3064	3212	3359	3507	3654		
47	3801	3949	4096	4243	4391	4538	4685	4833	4980	5127		
48	5275	5422	5569	5717	5864	6011	6159	6306	6453	6600		
49	6748	6895	7042	7190	7337	7484	7631	7778	7926	8073		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

(46)

LOGARITHMS

N. 29500 L. 469

N	0	1	2	3	4	5	6	7	8	9	D	Pro
2950	4698220	8367	8515	8662	8809	8956	9103	9251	9398	9545	147	
51	9692	9839	9986	0134	0281	0428	0575	0722	0869	1016		
52	4701164	1311	1458	1605	1752	1899	2046	2193	2340	2487		
53	2634	2782	2929	3076	3223	3370	3517	3664	3811	3958		
54	4105	4252	4399	4546	4693	4840	4987	5134	5281	5428		
55	5575	5722	5869	6016	6163	6310	6457	6604	6750	6897		
56	7044	7191	7338	7485	7632	7779	7926	8073	8219	8366		
57	8513	8660	8807	8954	9101	9248	9394	9541	9688	9835		
58	9982	0129	0275	0422	0569	0716	0863	1009	1156	1303		
59	4711450	1596	1743	1890	2037	2183	2330	2477	2624	2770		
2960	2917	3064	3211	3357	3504	3651	3797	3944	4091	4237	147	
61	4384	4531	4677	4824	4971	5117	5264	5411	5557	5704		
62	5851	5997	6144	6290	6437	6584	6730	6877	7023	7170		
63	7317	7463	7610	7756	7903	8049	8196	8342	8489	8635		
64	8782	8929	9075	9222	9368	9515	9661	9808	9954	0101		
65	4720247	0393	0540	0686	0833	0979	1126	1272	1419	1565		
66	1711	1858	2004	2151	2297	2444	2590	2736	2883	3029		
67	3175	3322	3468	3615	3761	3907	4054	4200	4346	4493		
68	4639	4785	4932	5078	5224	5371	5517	5663	5809	5956		
69	6102	6248	6395	6541	6687	6833	6980	7126	7272	7418		
2970	7564	7711	7857	8003	8149	8296	8442	8588	8734	8880	146	
71	9027	9173	9319	9465	9611	9757	9903	0050	0196	0342		
72	4730488	0634	0780	0926	1073	1219	1365	1511	1657	1803		
73	1949	2095	2241	2387	2533	2679	2825	2972	3118	3264		
74	3410	3556	3702	3848	3994	4140	4286	4432	4578	4724		
75	4870	5016	5162	5308	5454	5600	5746	5891	6037	6183		
76	6329	6475	6621	6767	6913	7059	7205	7351	7497	7642		
77	7788	7934	8080	8226	8372	8518	8664	8809	8955	9101		
78	9247	9393	9539	9684	9830	9976	0122	0268	0413	0559		
79	4740705	0851	0997	1142	1288	1434	1580	1725	1871	2017		
2980	2163	2308	2454	2600	2746	2891	3037	3183	3328	3474	146	
81	3620	3765	3911	4057	4202	4348	4494	4639	4785	4931		
82	5076	5222	5368	5513	5659	5805	5950	6096	6241	6387		
83	6533	6678	6824	6969	7115	7260	7406	7552	7697	7843		
84	7988	8134	8279	8425	8570	8716	8861	9007	9152	9298		
85	9443	9589	9734	9880	0025	0171	0316	0462	0607	0753		
86	4750898	1043	1189	1334	1480	1625	1771	1916	2061	2207		
87	2352	2498	2643	2788	2934	3079	3225	3370	3515	3661		
88	3806	3951	4097	4242	4387	4533	4678	4823	4969	5114		
89	5259	5404	5550	5695	5840	5986	6131	6276	6421	6567		
2990	6712	6857	7002	7148	7293	7438	7583	7729	7874	8019	145	
91	8164	8309	8455	8600	8745	8890	9035	9180	9326	9471		
92	9616	9761	9906	0051	0196	0342	0487	0632	0777	0922		
93	4761067	1212	1357	1502	1648	1793	1938	2083	2228	2373		
94	2518	2663	2808	2953	3098	3243	3388	3533	3678	3823		
95	3968	4113	4258	4403	4548	4693	4838	4983	5128	5273		
96	5418	5563	5708	5853	5998	6143	6288	6433	6578	6723		
97	6867	7012	7157	7302	7447	7592	7737	7882	8027	8171		
98	8316	8461	8606	8751	8896	9041	9185	9330	9475	9620		
99	9765	9909	0054	0199	0344	0489	0633	0778	0923	1068		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

N	O	I	2	3	4	5	6	7	8	9	D	Pro
3000	4771213	1357	1502	1647	1792	1936	2081	2226	2371	2515		
01	2660	2805	2949	3094	3239	3383	3528	3673	3818	3962		
02	4107	4252	4396	4541	4686	4830	4975	5119	5264	5409		
03	5553	5698	5843	5987	6132	6276	6421	6566	6710	6855		
04	6999	7144	7288	7433	7578	7722	7867	8011	8156	8300		
05	8445	8589	8734	8878	9023	9167	9312	9456	9601	9745		
06	9890	0034	0179	0323	0468	0612	0757	0901	1045	1190		I 45
07	4781334	1479	1623	1768	1912	2056	2201	2345	2490	2634		1 15
08	2778	2923	3067	3211	3356	3500	3645	3789	3933	4078		2 29
09	4222	4366	4511	4655	4799	4943	5088	5232	5376	5521		3 44
3010	5665	5809	5954	6098	6242	6386	6531	6675	6819	6963		4 58
11	7108	7252	7396	7540	7684	7829	7973	8117	8261	8405		5 73
12	8550	8694	8838	8982	9126	9271	9415	9559	9703	9847		6 87
13	9991	0135	0280	0424	0568	0712	0856	1000	1144	1288		7 102
14	4791432	1577	1721	1865	2009	2153	2297	2441	2585	2729		8 116
15	2873	3017	3161	3305	3449	3593	3737	3881	4025	4169	I 44	9 131
16	4313	4457	4601	4745	4889	5033	5177	5321	5465	5609		
17	5753	5897	6041	6185	6329	6473	6617	6761	6905	7048		
18	7192	7336	7480	7624	7768	7912	8056	8200	8343	8487		
19	8631	8775	8919	9063	9206	9350	9494	9638	9782	9926		
3020	4800069	0213	0357	0501	0645	0788	0932	1076	1220	1363		I 44
21	1507	1651	1795	1939	2082	2226	2370	2513	2657	2801		1 14
22	2945	3088	3232	3376	3519	3663	3807	3950	4094	4238		2 29
23	4381	4525	4669	4812	4956	5100	5243	5387	5531	5674		3 43
24	5818	5961	6105	6249	6392	6536	6679	6823	6967	7110		4 58
25	7254	7397	7541	7684	7828	7972	8115	8259	8402	8546		5 72
26	8689	8833	8976	9120	9263	9407	9550	9694	9837	9981		6 86
27	4810124	0268	0411	0555	0698	0842	0985	1128	1272	1415		7 101
28	1559	1702	1846	1989	2132	2276	2419	2563	2706	2849		8 115
29	2993	3136	3279	3423	3566	3710	3853	3996	4140	4283		9 130
3030	4426	4570	4713	4856	5000	5143	5286	5429	5573	5716		
31	5859	6003	6146	6289	6432	6576	6719	6862	7005	7149		
32	7292	7435	7578	7722	7865	8008	8151	8295	8438	8581		
33	8724	8867	9010	9154	9297	9440	9583	9726	9869	0013		
34	4820156	0299	0442	0585	0728	0871	1015	1158	1301	1444		
35	1587	1730	1873	2016	2159	2302	2445	2589	2732	2875		I 43
36	3018	3161	3304	3447	3590	3733	3876	4019	4162	4305		1 14
37	4448	4591	4734	4877	5020	5163	5306	5449	5592	5735		2 29
38	5878	6021	6164	6307	6449	6592	6735	6878	7021	7164		3 43
39	7307	7450	7593	7736	7879	8021	8164	8307	8450	8593		4 57
3040	8736	8879	9022	9164	9307	9450	9593	9736	9879	0021		5 72
41	4830164	0307	0450	0593	0735	0878	1021	1164	1307	1449		6 86
42	1592	1735	1878	2020	2163	2306	2449	2591	2734	2877		7 100
43	3020	3162	3305	3448	3590	3733	3876	4018	4161	4304		8 114
44	4446	4589	4732	4874	5017	5160	5302	5445	5588	5730		9 129
45	5873	6016	6158	6301	6443	6586	6729	6871	7014	7156		
46	7299	7442	7584	7727	7869	8012	8154	8297	8439	8582		
47	8725	8867	9010	9152	9295	9437	9580	9722	9865	0007		
48	4840150	0292	0435	0577	0720	0862	1004	1147	1289	1432		
49	1574	1717	1859	2002	2144	2286	2429	2571	2714	2856		
N	O	I	2	3	4	5	6	7	8	9	D	Pro

(48)

LOGARITHMS

N. 30500 L. 484

N	O	1	2	3	4	5	6	7	8	9	D	Pro
3050	4842998	3141	3283	3426	3568	3710	3853	3995	4137	4280		
51	4422	4564	4707	4849	4991	5134	5276	5418	5561	5703		
52	5845	5988	6130	6272	6414	6557	6699	6841	6984	7126		
53	7268	7410	7553	7695	7837	7979	8121	8264	8406	8548		
54	8690	8833	8975	9117	9259	9401	9543	9686	9828	9970		
55	4850112	0254	0396	0539	0681	0823	0965	1107	1249	1391		
56	1533	1676	1818	1960	2102	2244	2386	2528	2670	2812		
57	2954	3096	3239	3381	3523	3665	3807	3949	4091	4233		
58	4375	4517	4659	4801	4943	5085	5227	5369	5511	5653		
59	5795	5937	6079	6221	6363	6505	6647	6788	6930	7072		
3060	7214	7356	7498	7640	7782	7924	8066	8208	8350	8491		
61	8633	8775	8917	9059	9201	9343	9484	9626	9768	9910		
62	4860052	0194	0336	0477	0619	0761	0903	1045	1186	1328		
63	1470	1612	1754	1895	2037	2179	2321	2462	2604	2746		
64	2888	3029	3171	3313	3455	3596	3738	3880	4021	4163		
65	4305	4446	4588	4730	4872	5013	5155	5297	5438	5580		
66	5722	5863	6005	6146	6288	6430	6571	6713	6855	6996		
67	7138	7279	7421	7563	7704	7846	7987	8129	8270	8412		
68	8554	8695	8837	8978	9120	9261	9403	9544	9686	9827		
69	9969	0110	0252	0393	0535	0676	0818	0959	1101	1242		
3070	4871384	1525	1667	1808	1950	2091	2232	2374	2515	2657		
71	2798	2940	3081	3222	3364	3505	3647	3788	3929	4071		
72	4212	4353	4495	4636	4778	4919	5060	5202	5342	5484		
73	5626	5767	5908	6050	6191	6332	6473	6615	6756	6897		
74	7039	7180	7321	7462	7604	7745	7886	8027	8169	8310		
75	8451	8592	8734	8875	9016	9157	9299	9440	9581	9722		
76	9863	0004	0146	0287	0428	0569	0710	0852	0993	1134		
77	4881275	1416	1557	1698	1839	1981	2122	2263	2404	2545		
78	2686	2827	2968	3109	3251	3392	3533	3674	3815	3956		
79	4097	4238	4379	4520	4661	4802	4943	5084	5225	5366		
3080	5507	5648	5789	5930	6071	6212	6353	6494	6635	6776		
81	6917	7058	7199	7340	7481	7622	7763	7904	8045	8185		
82	8326	8467	8608	8749	8890	9031	9172	9313	9454	9594		
83	9735	9876	0017	0158	0299	0440	0580	0721	0862	1003		
84	4891144	1285	1425	1566	1707	1848	1989	2129	2270	2411		
85	2552	2692	2833	2974	3115	3256	3396	3537	3678	3818		
86	3959	4100	4241	4381	4522	4663	4804	4944	5085	5226		
87	5366	5507	5648	5788	5929	6070	6210	6351	6492	6632		
88	6773	6914	7054	7195	7335	7476	7617	7757	7898	8038		
89	8179	8320	8460	8601	8741	8882	9023	9163	9304	9444		
3090	9585	9725	9866	0006	0147	0287	0428	0569	0709	0850		
91	4900990	1131	1271	1412	1552	1693	1833	1973	2114	2254		
92	2395	2535	2676	2816	2957	3097	3238	3378	3518	3659		
93	3799	3940	4080	4220	4361	4501	4642	4782	4922	5063		
94	5203	5343	5484	5624	5765	5905	6045	6186	6326	6466		
95	6607	6747	6887	7027	7168	7308	7448	7589	7729	7869		
96	8010	8150	8290	8430	8571	8711	8851	8991	9132	9272		
97	9412	9552	9693	9833	9973	0113	0253	0394	0534	0674		
98	4910814	0954	1094	1235	1375	1515	1655	1795	1935	2076		
99	2216	2356	2496	2636	2776	2916	3057	3197	3337	3477		
N	O	1	2	3	4	5	6	7	8	9	D	Pts

142

142

141

141

140

N	O	I	2	3	4	5	6	7	8	9	D	Pro
3100	4913617	3757	3897	4037	4177	4317	4457	4597	4738	4878	140	
01	5018	5158	5298	5438	5578	5718	5858	5998	6138	6278		
02	6418	6558	6698	6838	6978	7118	7258	7398	7538	7678		
03	7818	7958	8098	8238	8378	8517	8657	8797	8937	9077		
04	9217	9357	9497	9637	9777	9917	0057	0196	0336	0476		
05	4920616	0756	0896	1036	1175	1315	1455	1595	1735	1875		
06	2015	2154	2294	2434	2574	2714	2853	2993	3133	3273		140
07	3413	3552	3692	3832	3972	4111	4251	4391	4531	4670		1 14
08	4810	4950	5090	5229	5369	5509	5648	5788	5928	6068		2 28
09	6207	6347	6487	6626	6766	6906	7045	7185	7325	7464		3 42
3110	7604	7744	7883	8023	8162	8302	8442	8581	8721	8861	140	4 56
11	9000	9140	9279	9419	9558	9698	9838	9977	0117	0256		5 70
12	4930396	0535	0675	0815	0954	1094	1233	1373	1512	1652		6 84
13	1791	1931	2070	2210	2349	2489	2628	2768	2907	3047		7 98
14	3186	3326	3465	3604	3744	3883	4023	4162	4302	4441		8 112
15	4581	4720	4859	4999	5138	5278	5417	5556	5696	5835		9 126
16	5974	6114	6253	6393	6532	6671	6811	6950	7089	7229		
17	7368	7507	7647	7786	7925	8065	8204	8343	8483	8622		
18	8761	8900	9040	9179	9318	9457	9597	9736	9875	0015		
19	4940154	0293	0432	0571	0711	0850	0989	1128	1268	1407		
3120	1546	1685	1824	1964	2103	2242	2381	2520	2659	2799	139	139
21	2938	3077	3216	3355	3494	3633	3773	3912	4051	4190		1 14
22	4329	4468	4607	4746	4885	5024	5164	5303	5442	5581		2 28
23	5720	5859	5998	6137	6276	6415	6554	6693	6832	6971		3 42
24	7110	7249	7388	7527	7666	7805	7944	8083	8222	8361		4 56
25	8500	8639	8778	8917	9056	9195	9334	9473	9612	9751		5 70
26	9890	0029	0168	0307	0445	0584	0723	0862	1001	1140		6 83
27	4951279	1418	1557	1695	1834	1973	2112	2251	2390	2529		7 97
28	2667	2806	2945	3084	3223	3362	3500	3639	3778	3917		8 111
29	4056	4194	4333	4472	4611	4750	4888	5027	5166	5305		9 125
3130	5443	5582	5721	5860	5998	6137	6276	6415	6553	6692	138	138
31	6831	6969	7108	7247	7385	7524	7663	7802	7940	8079		1 14
32	8218	8356	8495	8634	8772	8911	9049	9188	9327	9465		2 28
33	9604	9743	9881	0020	0158	0297	0436	0574	0713	0851		3 42
34	4960990	1128	1267	1406	1544	1683	1821	1960	2098	2237		4 56
35	2375	2514	2653	2791	2930	3068	3207	3345	3484	3622		5 70
36	3761	3899	4038	4176	4314	4453	4591	4730	4868	5007		6 83
37	5145	5284	5422	5560	5699	5837	5976	6114	6253	6391		7 97
38	6529	6668	6806	6945	7083	7221	7360	7498	7636	7775		8 110
39	7913	8052	8190	8328	8467	8605	8743	8882	9020	9158		9 124
3140	9290	9435	9573	9711	9850	9988	0126	0265	0403	0541	138	
41	4970679	0818	0956	1094	1232	1371	1509	1647	1785	1924		
42	2062	2200	2338	2476	2615	2753	2891	3029	3167	3306		
43	3444	3582	3720	3858	3996	4135	4273	4411	4549	4687		
44	4825	4964	5102	5240	5378	5516	5654	5792	5930	6068		
45	6206	6345	6483	6621	6759	6897	7035	7173	7311	7449		
46	7587	7725	7863	8001	8139	8277	8415	8553	8691	8829		
47	8967	9105	9243	9381	9519	9657	9795	9933	0071	0209		
48	4980347	0485	0623	0761	0899	1037	1175	1313	1451	1589		
49	1727	1865	2002	2140	2278	2416	2554	2692	2830	2968		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

(50)

LOGARITHMS

N. 315 L. 498

N	0	1	2	3	4	5	6	7	8	9	D	Pro
3150	4983106	3243	3381	3519	3657	3795	3933	4071	4208	4346		
51	4484	4622	4760	4897	5035	5173	5311	5449	5587	5724		
52	5862	6000	6138	6275	6413	6551	6689	6826	6964	7102		
53	7240	7377	7515	7653	7791	7928	8066	8204	8341	8479		
54	8617	8755	8892	9030	9168	9305	9443	9581	9718	9856		
55	9994	0131	0269	0407	0544	0682	0819	0957	1095	1232		
56	4991370	1508	1645	1783	1920	2058	2196	2333	2471	2608		138
57	2746	2883	3021	3158	3296	3434	3571	3709	3846	3984		1 14
58	4121	4259	4396	4534	4671	4809	4946	5084	5221	5359		2 28
59	5496	5634	5771	5909	6046	6184	6321	6459	6596	6733		3 41
3160	6871	7008	7146	7283	7421	7558	7695	7833	7970	8108		4 55
61	8245	8382	8520	8657	8794	8932	9069	9207	9344	9481		5 69
62	9619	9756	9893	0031	0168	0305	0443	0580	0717	0855		6 83
63	5000992	1129	1267	1404	1541	1678	1816	1953	2090	2227		7 97
64	2365	2502	2639	2777	2914	3051	3188	3325	3463	3600		8 110
65	3737	3874	4012	4149	4286	4423	4560	4698	4835	4972		9 124
66	5109	5246	5383	5521	5658	5795	5932	6069	6206	6344		
67	6481	6618	6755	6892	7029	7166	7303	7440	7578	7715		
68	7852	7989	8126	8263	8400	8537	8674	8811	8948	9085		
69	9222	9359	9496	9634	9771	9908	0045	0182	0319	0456	137	
3170	5010593	0730	0867	1004	1141	1278	1415	1552	1688	1825		137
71	1962	2099	2236	2373	2510	2647	2784	2921	3058	3195		1 14
72	3332	3469	3606	3743	3879	4016	4153	4290	4427	4564		2 27
73	4701	4838	4974	5111	5248	5385	5522	5659	5796	5932		3 41
74	6069	6206	6343	6480	6617	6753	6890	7027	7164	7301		4 55
75	7437	7574	7711	7848	7984	8121	8258	8395	8531	8668		5 69
76	8805	8942	9078	9215	9352	9489	9625	9762	9899	0035		6 82
77	5020172	0309	0446	0582	0719	0856	0992	1129	1266	1402		7 96
78	1539	1676	1812	1949	2086	2222	2359	2495	2632	2769		8 110
79	2905	3042	3178	3315	3452	3588	3725	3861	3998	4135		9 123
3180	4271	4408	4544	4681	4817	4954	5091	5227	5364	5500		
81	5637	5773	5910	6046	6183	6319	6456	6592	6729	6865		
82	7002	7138	7275	7411	7548	7684	7821	7957	8093	8230		
83	8366	8503	8639	8776	8912	9049	9185	9321	9458	9594		
84	9731	9867	0003	0140	0276	0413	0549	0685	0822	0958		
85	5031094	1231	1367	1503	1640	1776	1912	2049	2185	2321		136
86	2458	2594	2730	2867	3003	3139	3276	3412	3548	3684		1 14
87	3821	3957	4093	4229	4366	4502	4638	4774	4911	5047		2 27
88	5183	5319	5456	5592	5728	5864	6000	6137	6273	6409		3 41
89	6545	6681	6818	6954	7090	7226	7362	7498	7635	7771		4 54
3190	7907	8043	8179	8315	8451	8587	8724	8860	8996	9132		5 68
91	9268	9404	9540	9676	9812	9948	0085	0221	0357	0493		6 82
92	5040629	0765	0901	1037	1173	1309	1445	1581	1717	1853		7 95
93	1989	2125	2261	2397	2533	2669	2805	2941	3077	3213	136	8 109
94	3349	3485	3621	3757	3893	4029	4165	4301	4437	4573		9 122
95	4709	4845	4980	5116	5252	5388	5524	5660	5796	5932		
96	6068	6204	6339	6475	6611	6747	6883	7019	7155	7291		
97	7426	7562	7698	7834	7970	8106	8241	8377	8513	8649		
98	8785	8920	9056	9192	9328	9464	9599	9735	9871	0007		
99	5050142	0278	0414	0550	0685	0821	0957	1093	1228	1364		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

N. 320 L. 505

OF NUMBERS.

(51)

N	O	I	2	3	4	5	6	7	8	9	D	Pro
3200	5051500	1635	1771	1907	2043	2178	2314	2450	2585	2721		
01	2857	2992	3128	3264	3399	3535	3671	3806	3942	4078		
02	4213	4349	4485	4620	4756	4891	5027	5163	5298	5434		
03	5569	5705	5841	5976	6112	6247	6383	6518	6654	6790		
04	6925	7061	7196	7332	7467	7603	7738	7874	8009	8145		
05	8280	8416	8551	8687	8822	8958	9093	9229	9364	9500		
06	9635	9771	9906	0042	0177	0312	0448	0583	0719	0854		
07	5060990	1125	1260	1396	1531	1667	1802	1937	2073	2208		136
08	2344	2479	2614	2750	2885	3020	3156	3291	3426	3562		1 14
09	3697	3833	3968	4103	4238	4374	4509	4644	4780	4915		2 27
3210	5050	5186	5321	5456	5591	5727	5862	5997	6133	6268		3 41
11	6403	6538	6674	6809	6944	7079	7214	7350	7485	7620		4 54
12	7755	7891	8026	8161	8296	8431	8567	8702	8837	8972		5 68
13	9107	9242	9378	9513	9648	9783	9918	0053	0188	0324		6 82
14	5070459	0594	0729	0864	0999	1134	1269	1405	1540	1675		7 95
15	1810	1945	2080	2215	2350	2485	2620	2755	2890	3025		8 109
16	3160	3295	3430	3566	3701	3836	3971	4106	4241	4376	135	9 122
17	4511	4646	4781	4916	5051	5186	5321	5456	5590	5725		
18	5860	5995	6130	6265	6400	6535	6670	6805	6940	7075		
19	7210	7345	7480	7614	7749	7884	8019	8154	8289	8424		
3220	8559	8694	8828	8963	9098	9233	9368	9503	9638	9772		
21	9907	0042	0177	0312	0447	0581	0716	0851	0986	1121		
22	5081255	1390	1525	1660	1794	1929	2064	2199	2334	2468		135
23	2603	2738	2873	3007	3142	3277	3411	3546	3681	3816		1 14
24	3950	4085	4220	4354	4489	4624	4758	4893	5028	5163		2 27
25	5297	5432	5567	5701	5836	5970	6105	6240	6374	6509		3 41
26	6644	6778	6913	7047	7182	7317	7451	7586	7720	7855		4 54
27	7990	8124	8259	8393	8528	8663	8797	8932	9066	9201		5 68
28	9335	9470	9604	9739	9873	0008	0142	0277	0411	0546		6 81
29	5090680	0815	0949	1084	1218	1353	1487	1622	1756	1891		7 95
3230	2025	2160	2294	2429	2563	2697	2832	2966	3101	3235		8 108
31	3370	3504	3638	3773	3907	4042	4176	4310	4445	4579		9 122
32	4714	4848	4982	5117	5251	5385	5520	5654	5788	5923		
33	6057	6191	6326	6460	6594	6729	6863	6997	7132	7266		
34	7400	7534	7669	7803	7937	8072	8206	8340	8474	8609		
35	8743	8877	9011	9146	9280	9414	9548	9682	9817	9951		
36	510085	0219	0354	0488	0622	0756	0890	1024	1159	1293		134
37	1427	1561	1695	1829	1964	2098	2232	2366	2500	2634		1 13
38	2768	2903	3037	3171	3305	3439	3573	3707	3841	3975		2 27
39	4109	4244	4378	4512	4646	4780	4914	5048	5182	5316		3 40
3240	5450	5584	5718	5852	5986	6120	6254	6388	6522	6656	134	4 54
41	6790	6924	7058	7192	7326	7460	7594	7728	7862	7996		5 67
42	8130	8264	8398	8532	8666	8800	8934	9068	9202	9336		6 80
43	9469	9603	9737	9871	0005	0139	0273	0407	0541	0675		7 94
44	5110808	0942	1076	1210	1344	1478	1612	1745	1879	2013		8 107
45	2147	2281	2415	2548	2682	2816	2950	3084	3218	3351		9 121
46	3485	3619	3753	3887	4020	4154	4288	4422	4555	4689		
47	4823	4957	5090	5224	5358	5492	5625	5759	5893	6026		
48	6160	6294	6428	6561	6695	6829	6962	7096	7230	7363		
49	7497	7631	7764	7898	8032	8165	8299	8433	8566	8700		
N	O	I	2	3	4	5	6	7	8	9	D	Pts.

(52)

LOGARITHMS

N. 325 L. 511

N	0	1	2	3	4	5	6	7	8	9	D	Pro
3250	5118834	8967	9101	9234	9368	9502	9635	9769	9903	0036		
51	5120170	0303	0437	0570	0704	0838	0971	1105	1238	1372		
52	1505	1639	1772	1906	2040	2173	2307	2440	2574	2707		
53	2841	2974	3108	3241	3375	3508	3642	3775	3909	4042		
54	4175	4309	4442	4576	4709	4843	4976	5110	5243	5377		
55	5510	5643	5777	5910	6044	6177	6310	6444	6577	6711		
56	6844	6977	7111	7244	7377	7511	7644	7778	7911	8044		
57	8178	8311	8444	8578	8711	8844	8978	9111	9244	9377		
58	9511	9644	9777	9911	0044	0177	0311	0444	0577	0710		
59	5130844	0977	1110	1243	1377	1510	1643	1776	1910	2043		
3260	2176	2309	2442	2576	2709	2842	2975	3108	3242	3375		
61	3508	3641	3774	3908	4041	4174	4307	4440	4573	4706		
62	4840	4973	5106	5239	5372	5505	5638	5771	5905	6038		
63	6171	6304	6437	6570	6703	6836	6969	7102	7235	7368		
64	7502	7635	7768	7901	8034	8167	8300	8433	8566	8699		
65	8832	8965	9098	9231	9364	9497	9630	9763	9896	0029		
66	5140162	0295	0428	0561	0694	0827	0960	1093	1225	1358		
67	1491	1624	1757	1890	2023	2156	2289	2422	2555	2688		
68	2820	2953	3086	3219	3352	3485	3618	3751	3883	4016		
69	4149	4282	4415	4548	4681	4813	4946	5079	5212	5345		
3270	5478	5610	5743	5876	6009	6142	6274	6407	6540	6673		
71	6805	6938	7071	7204	7336	7469	7602	7735	7867	8000		
72	8133	8266	8398	8531	8664	8797	8929	9062	9195	9327		
73	9460	9593	9725	9858	9991	0123	0256	0389	0521	0654		
74	5150787	0919	1052	1185	1317	1450	1583	1715	1848	1980		
75	2113	2246	2378	2511	2643	2776	2909	3041	3174	3306		
76	3439	3571	3704	3837	3969	4102	4234	4367	4499	4632		
77	4764	4897	5029	5162	5294	5427	5560	5692	5825	5957		
78	6089	6222	6354	6487	6619	6752	6884	7017	7149	7282		
79	7414	7547	7679	7811	7944	8076	8209	8341	8474	8606		
3280	8738	8871	9003	9136	9268	9400	9533	9665	9798	9930		
81	5160062	0195	0327	0459	0592	0724	0856	0989	1121	1253		
82	1386	1518	1650	1783	1915	2047	2180	2312	2444	2577		
83	2709	2841	2973	3106	3238	3370	3502	3635	3767	3899		
84	4031	4164	4296	4428	4560	4693	4825	4957	5089	5222		
85	5354	5486	5618	5750	5883	6015	6147	6279	6411	6543		
86	6676	6808	6940	7072	7204	7336	7469	7601	7733	7865		
87	7997	8129	8261	8393	8526	8658	8790	8922	9054	9186		
88	9318	9450	9582	9714	9846	9978	0111	0243	0375	0507		
89	5170639	0771	0903	1035	1167	1299	1431	1563	1695	1827		
3290	1959	2091	2223	2355	2487	2619	2751	2883	3015	3147		
91	3279	3411	3543	3675	3807	3939	4071	4202	4334	4466		
92	4598	4730	4862	4994	5126	5258	5390	5522	5654	5785		
93	5917	6049	6181	6313	6445	6577	6709	6840	6972	7104		
94	7236	7368	7500	7631	7763	7895	8027	8159	8291	8422		
95	8554	8686	8818	8950	9081	9213	9345	9477	9608	9740		
96	9872	0004	0136	0267	0399	0531	0663	0794	0926	1058		
97	5181189	1321	1453	1585	1716	1848	1980	2111	2243	2375		
98	2507	2638	2770	2902	3033	3165	3297	3428	3560	3692		
99	3823	3955	4086	4218	4350	4481	4613	4745	4876	5008		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

134

1 13

2 27

3 40

4 54

5 67

6 80

7 94

8 107

9 121

133

133

1 13

2 27

3 40

4 53

5 67

6 80

7 93

8 106

9 120

132

1 13

2 26

3 40

4 53

5 66

6 79

7 92

8 106

9 119

132

N	O	I	2	3	4	5	6	7	8	9	D	Pro
3300	5185139	5271	5403	5534	5666	5797	5929	6061	6192	6324		
01	6455	6587	6718	6850	6981	7113	7245	7376	7508	7639		
02	7771	7902	8034	8165	8297	8428	8560	8691	8823	8954		
03	9086	9217	9349	9480	9612	9743	9875	0006	0137	0269		
04	5190400	0532	0663	0795	0926	1058	1189	1320	1452	1583		
05	1715	1846	1977	2109	2240	2372	2503	2634	2766	2897		
06	3028	3160	3291	3423	3554	3685	3817	3948	4079	4211		132
07	4342	4474	4605	4736	4867	4999	5130	5261	5392	5524		13
08	5655	5786	5918	6049	6180	6311	6443	6574	6705	6836		26
09	6968	7099	7230	7361	7493	7624	7755	7886	8018	8149		40
3310	8280	8411	8542	8674	8805	8936	9067	9198	9329	9461		53
11	9592	9723	9854	9985	0116	0248	0379	0510	0641	0772		66
12	5200903	1034	1166	1297	1428	1559	1690	1821	1952	2083		79
13	2214	2345	2477	2608	2739	2870	3001	3132	3263	3394		92
14	3525	3656	3787	3918	4049	4180	4311	4442	4573	4704		106
15	4835	4966	5097	5228	5359	5490	5621	5752	5883	6014		119
16	6145	6276	6407	6538	6669	6800	6931	7062	7193	7324		
17	7455	7586	7717	7847	7978	8109	8240	8371	8502	8633		
18	8764	8895	9026	9156	9287	9418	9549	9680	9811	9942		
19	5210073	0203	0334	0465	0596	0727	0858	0988	1119	1250		
3320	1381	1512	1642	1773	1904	2035	2166	2296	2427	2558		131
21	2689	2820	2950	3081	3212	3343	3473	3604	3735	3866		13
22	3996	4127	4258	4388	4519	4650	4781	4911	5042	5173		26
23	5303	5434	5565	5695	5826	5957	6088	6218	6349	6479		39
24	6610	6741	6871	7002	7133	7263	7394	7525	7655	7786		52
25	7916	8047	8178	8308	8439	8570	8700	8831	8961	9092		66
26	9222	9353	9484	9614	9745	9875	0006	0136	0267	0397		79
27	5220528	0659	0789	0920	1050	1181	1311	1442	1572	1703		92
28	1833	1964	2094	2225	2355	2486	2616	2747	2877	3007		105
29	3138	3268	3399	3529	3660	3790	3921	4051	4181	4312		118
3330	4442	4573	4703	4834	4964	5094	5225	5355	5486	5616		
31	5746	5877	6007	6137	6268	6398	6529	6659	6789	6920		
32	7050	7180	7311	7441	7571	7702	7832	7962	8093	8223		
33	8353	8483	8614	8744	8874	9005	9135	9265	9395	9526		
34	9656	9786	9916	0047	0177	0307	0437	0568	0698	0828		
35	5230958	1089	1219	1349	1479	1609	1740	1870	2000	2130		
36	2260	2391	2521	2651	2781	2911	3041	3172	3302	3432		130
37	3562	3692	3822	3952	4083	4213	4343	4473	4603	4733		13
38	4863	4993	5124	5254	5384	5514	5644	5774	5904	6034		26
39	6164	6294	6424	6554	6684	6814	6945	7075	7205	7335		39
3340	7465	7595	7725	7855	7985	8115	8245	8375	8505	8635		52
41	8765	8895	9025	9155	9285	9415	9545	9675	9805	9935		65
42	5240064	0194	0324	0454	0584	0714	0844	0974	1104	1234		78
43	1364	1494	1624	1753	1883	2013	2143	2273	2403	2533		91
44	2663	2793	2922	3052	3182	3312	3442	3572	3702	3831		104
45	3961	4091	4221	4351	4481	4610	4740	4870	5000	5130		117
46	5259	5389	5519	5649	5779	5908	6038	6168	6298	6427		
47	6557	6687	6817	6946	7076	7206	7336	7465	7595	7725		
48	7854	7984	8114	8244	8373	8503	8633	8762	8892	9022		
49	9151	9281	9411	9540	9670	9800	9929	0059	0189	0318		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

(54)

LOGARITHMS

N. 335 L. 525

N	0	1	2	3	4	5	6	7	8	9	D	Pro
3350	5250448	0578	0707	0837	0967	1096	1226	1355	1485	1615		
51	1744	1874	2003	2133	2263	2392	2522	2651	2781	2911		
52	3040	3170	3299	3429	3558	3688	3817	3947	4076	4206		
53	4336	4465	4595	4724	4854	4983	5113	5242	5372	5501		
54	5631	5760	5890	6019	6148	6278	6407	6537	6666	6796		
55	6925	7055	7184	7314	7443	7572	7702	7831	7961	8090		
56	8220	8349	8478	8608	8737	8867	8996	9125	9255	9384		
57	9513	9643	9772	9902	0031	0160	0290	0419	0548	0678		
58	5260807	0936	1066	1195	1324	1454	1583	1712	1841	1971		
59	2100	2229	2359	2488	2617	2746	2876	3005	3134	3264		
3360	3393	3522	3651	3781	3910	4039	4168	4297	4427	4556		
61	4685	4814	4944	5073	5202	5331	5460	5590	5719	5848		
62	5977	6106	6235	6365	6494	6623	6752	6881	7010	7140		
63	7269	7398	7527	7656	7785	7914	8043	8173	8302	8431		
64	8560	8689	8818	8947	9076	9205	9334	9463	9593	9722		
65	9851	9980	0109	0238	0367	0496	0625	0754	0883	1012		
66	5271141	1270	1399	1528	1657	1786	1915	2044	2173	2302	129	
67	2431	2560	2689	2818	2947	3076	3205	3334	3463	3592		
68	3721	3850	3979	4108	4237	4366	4494	4623	4752	4881		
69	5010	5139	5268	5397	5526	5655	5783	5912	6041	6170		
3370	6299	6428	6557	6686	6814	6943	7072	7201	7330	7459		
71	7588	7716	7845	7974	8103	8232	8360	8489	8618	8747		
72	8876	9004	9133	9262	9391	9520	9648	9777	9906	0035		
73	5280163	0292	0421	0550	0678	0807	0936	1065	1193	1322		
74	1451	1579	1708	1837	1966	2094	2223	2352	2480	2609		
75	2738	2866	2995	3124	3252	3381	3510	3638	3767	3896		
76	4024	4153	4282	4410	4539	4668	4796	4925	5053	5182		
77	5311	5439	5568	5696	5825	5954	6082	6211	6339	6468		
78	6596	6725	6854	6982	7111	7239	7368	7496	7625	7753		
79	7882	8010	8139	8267	8396	8525	8653	8782	8910	9039		
3380	9167	9295	9424	9552	9681	9809	9938	0066	0195	0323		
81	5290452	0580	0709	0837	0965	1094	1222	1351	1479	1608		
82	1736	1864	1993	2121	2250	2378	2506	2635	2763	2892		
83	3020	3148	3277	3405	3533	3662	3790	3919	4047	4175		
84	4304	4432	4560	4689	4817	4945	5074	5202	5330	5458		
85	5587	5715	5843	5972	6100	6228	6356	6485	6613	6741		
86	6870	6998	7126	7254	7383	7511	7639	7767	7896	8024		
87	8152	8280	8408	8537	8665	8793	8921	9049	9178	9306		
88	9434	9562	9690	9819	9947	0075	0203	0331	0459	0588		
89	5300716	0844	0972	1100	1228	1356	1485	1613	1741	1869		
3390	1997	2125	2253	2381	2509	2637	2766	2894	3022	3150		
91	3278	3406	3534	3662	3790	3918	4046	4174	4302	4430		
92	4558	4686	4814	4943	5071	5199	5327	5455	5583	5711		
93	5839	5967	6095	6223	6351	6479	6607	6734	6862	6990		
94	7118	7246	7374	7502	7630	7758	7886	8014	8142	8270		
95	8398	8526	8654	8782	8909	9037	9165	9293	9421	9549		
96	9677	9805	9933	0060	0188	0316	0444	0572	0700	0828		
97	530955	1083	1211	1339	1467	1595	1722	1850	1978	2106		
98	2234	2362	2489	2617	2745	2873	3001	3128	3256	3384		
99	3512	3639	3767	3895	4023	4150	4278	4406	4534	4661		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

N	O	I	2	3	4	5	6	7	8	9	D	Pro
3400	5314789	4917	5045	5172	5300	5428	5556	5683	5811	5939		
01	6066	6194	6322	6449	6577	6705	6832	6960	7088	7215		
02	7343	7471	7598	7726	7854	7981	8109	8237	8364	8492		
03	8619	8747	8875	9002	9130	9258	9385	9513	9640	9768		
04	9896	0023	0151	0278	0406	0533	0661	0789	0916	1044		
05	5321171	1299	1426	1554	1681	1809	1936	2064	2191	2319		
06	2446	2574	2701	2829	2956	3084	3211	3339	3466	3594		128
07	3721	3849	3976	4104	4231	4359	4486	4614	4741	4868		1 13
08	4996	5123	5251	5378	5506	5633	5760	5888	6015	6143		2 26
09	6270	6397	6525	6652	6780	6907	7034	7162	7289	7416		3 38
3410	7544	7671	7799	7926	8053	8181	8308	8435	8563	8690		4 51
11	8817	8945	9072	9199	9326	9454	9581	9708	9836	9963		5 64
12	5330090	0218	0345	0472	0599	0727	0854	0981	1108	1236		6 77
13	1363	1490	1617	1745	1872	1999	2126	2254	2381	2508		7 90
14	2635	2762	2890	3017	3144	3271	3398	3526	3653	3780		8 102
15	3907	4034	4161	4289	4416	4543	4670	4797	4924	5051		9 115
16	5179	5306	5433	5560	5687	5814	5941	6068	6196	6323		
17	6450	6577	6704	6831	6958	7085	7212	7339	7466	7594		
18	7721	7848	7975	8102	8229	8356	8483	8610	8737	8864		
19	8991	9118	9245	9372	9499	9626	9753	9880	0007	0134	127	
3420	5340261	0388	0515	0642	0769	0896	1023	1150	1277	1404		127
21	1531	1658	1785	1912	2039	2165	2292	2419	2546	2673		1 13
22	2800	2927	3054	3181	3308	3435	3561	3688	3815	3942		2 25
23	4069	4196	4323	4450	4576	4703	4830	4957	5084	5211		3 38
24	5338	5464	5591	5718	5845	5972	6099	6225	6352	6479		4 51
25	6606	6733	6859	6986	7113	7240	7366	7493	7620	7747		5 64
26	7874	8000	8127	8254	8381	8507	8634	8761	8888	9014		6 76
27	9141	9268	9394	9521	9648	9775	9901	0028	0155	0281		7 89
28	5350408	0535	0662	0788	0915	1042	1168	1295	1422	1548		8 102
29	1675	1802	1928	2055	2181	2308	2435	2561	2688	2815		9 114
3430	2941	3068	3194	3321	3448	3574	3701	3827	3954	4081		
31	4207	4334	4460	4587	4713	4840	4967	5093	5220	5346		
32	5473	5599	5726	5852	5979	6105	6232	6359	6485	6612		
33	6738	6865	6991	7118	7244	7371	7497	7623	7750	7876		
34	8003	8129	8256	8382	8509	8635	8762	8888	9015	9141		
35	9267	9394	9520	9647	9773	9900	0026	0152	0279	0405		
36	5360532	0658	0784	0911	1037	1163	1290	1416	1543	1669		126
37	1795	1922	2048	2174	2301	2427	2553	2680	2806	2932		1 13
38	3059	3185	3311	3438	3564	3690	3817	3943	4069	4195		2 25
39	4322	4448	4574	4701	4827	4953	5079	5206	5332	5458		3 38
3440	5584	5711	5837	5963	6089	6216	6342	6468	6594	6721		4 50
41	6847	6973	7099	7225	7352	7478	7604	7730	7856	7982		5 63
42	8109	8235	8361	8487	8613	8739	8866	8992	9118	9244		6 76
43	9370	9496	9622	9749	9875	0001	0127	0253	0379	0505		7 88
44	5370631	0758	0884	1010	1136	1262	1388	1514	1640	1766		8 101
45	1892	2018	2144	2270	2396	2523	2649	2775	2901	3027		9 113
46	3153	3279	3405	3531	3657	3783	3909	4035	4161	4287	126	
47	4413	4539	4665	4791	4917	5043	5169	5295	5421	5547		
48	5673	5799	5924	6050	6176	6302	6428	6554	6680	6806		
49	6932	7058	7184	7310	7436	7561	7687	7813	7939	8065		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

(56)

LOGARITHMS

N. 345 L. 537

N	0	1	2	3	4	5	6	7	8	9	D	Pro
3450	5378191	8317	8443	8569	8694	8820	8946	9072	9198	9324		
51	9450	9575	9701	9827	9953	0079	0205	0330	0456	0582		
52	5380708	0834	0959	1085	1211	1337	1463	1588	1714	1840		
53	1966	2092	2217	2343	2469	2595	2720	2846	2972	3098		
54	3223	3349	3475	3601	3726	3852	3978	4103	4229	4355		
55	4481	4606	4732	4858	4983	5109	5235	5360	5486	5612		
56	5737	5863	5989	6114	6240	6366	6491	6617	6743	6868		
57	6994	7119	7245	7371	7496	7622	7747	7873	7999	8124		
58	8250	8375	8501	8627	8752	8878	9003	9129	9255	9380		
59	9506	9631	9757	9882	0008	0133	0259	0384	0510	0635		
3460	5390761	0887	1012	1138	1263	1389	1514	1640	1765	1891		
61	2016	2141	2267	2392	2518	2643	2769	2894	3020	3145		
62	3271	3396	3522	3647	3772	3898	4023	4149	4274	4400		
63	4525	4650	4776	4901	5027	5152	5277	5403	5528	5653		
64	5779	5904	6030	6155	6280	6406	6531	6656	6782	6907		
65	7032	7158	7283	7408	7534	7659	7784	7910	8035	8160		
66	8286	8411	8536	8661	8787	8912	9037	9163	9288	9413		
67	9538	9664	9789	9914	0039	0165	0290	0415	0540	0666		
68	5400791	0916	1041	1167	1292	1417	1542	1667	1793	1918		
69	2043	2168	2293	2419	2544	2669	2794	2919	3044	3170		
3470	3295	3420	3545	3670	3795	3920	4046	4171	4296	4421		
71	4546	4671	4796	4921	5047	5172	5297	5422	5547	5672		
72	5797	5922	6047	6172	6297	6423	6548	6673	6798	6923		
73	7048	7173	7298	7423	7548	7673	7798	7923	8048	8173		
74	8298	8423	8548	8673	8798	8923	9048	9173	9298	9423		
75	9548	9673	9798	9923	0048	0173	0298	0423	0548	0673		
76	5410798	0923	1048	1172	1297	1422	1547	1672	1797	1922		
77	2047	2172	2297	2422	2546	2671	2796	2921	3046	3171		
78	3296	3421	3546	3670	3795	3920	4045	4170	4295	4419		
79	4544	4669	4794	4919	5044	5168	5293	5418	5543	5668		
3480	5792	5917	6042	6167	6292	6416	6541	6666	6791	6915		
81	7040	7165	7290	7415	7539	7664	7789	7913	8038	8163		
82	8288	8412	8537	8662	8787	8911	9036	9161	9285	9410		
83	9535	9659	9784	9909	0033	0158	0283	0407	0532	0657		
84	5420781	0906	1031	1155	1280	1405	1529	1654	1779	1903		
85	2028	2152	2277	2402	2526	2651	2775	2900	3025	3149		
86	3274	3398	3523	3648	3772	3897	4021	4146	4270	4395		
87	4519	4644	4769	4893	5018	5142	5267	5391	5516	5640		
88	5765	5889	6014	6138	6263	6387	6512	6636	6761	6885		
89	7010	7134	7259	7383	7508	7632	7756	7881	8005	8130		
3490	8254	8379	8503	8628	8752	8876	9001	9125	9250	9374		
91	9498	9623	9747	9872	9996	0120	0245	0369	0494	0618		
92	5430742	0867	0991	1115	1240	1364	1488	1613	1737	1862		
93	1986	2110	2235	2359	2483	2607	2732	2856	2980	3105		
94	3229	3353	3478	3602	3726	3850	3975	4099	4223	4348		
95	4472	4596	4720	4845	4969	5093	5217	5342	5466	5590		
96	5714	5838	5963	6087	6211	6335	6460	6584	6708	6832		
97	6956	7081	7205	7329	7453	7577	7701	7826	7950	8074		
98	8198	8322	8446	8571	8695	8819	8943	9067	9191	9315		
99	9439	9564	9688	9812	9936	0060	0184	0308	0432	0556		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

126

1	13
2	25
3	38
4	50
5	63
6	76
7	88
8	101
9	113

125

1	13
2	25
3	38
4	50
5	63
6	75
7	88
8	100
9	113

124

1	12
2	25
3	37
4	50
5	62
6	74
7	87
8	99
9	112

N. 350 L. 544

OF NUMBERS.

(57)

N	O	I	2	3	4	5	6	7	8	9	D	Pro
3500	5440680	0805	0929	1053	1177	1301	1425	1549	1673	1797	124	
01	1921	2045	2169	2293	2417	2541	2665	2789	2913	3037		
02	3161	3285	3409	3533	3657	3781	3905	4029	4153	4277		
03	4401	4525	4649	4773	4897	5021	5145	5269	5393	5517		
04	5641	5765	5889	6013	6137	6261	6385	6508	6632	6756		
05	6880	7004	7128	7252	7376	7500	7624	7747	7871	7995		
06	8119	8243	8367	8491	8615	8738	8862	8986	9110	9234		124
07	9358	9481	9605	9729	9853	9977	0101	0224	0348	0472		1 12
08	5450596	0720	0843	0967	1091	1215	1339	1462	1586	1710		2 25
09	1834	1957	2081	2205	2329	2452	2576	2700	2824	2947		3 37
3510	3071	3195	3319	3442	3566	3690	3813	3937	4061	4185		4 50
11	4308	4432	4556	4679	4803	4927	5050	5174	5298	5421		5 62
12	5545	5669	5792	5916	6040	6163	6287	6411	6534	6658		6 74
13	6781	6905	7029	7152	7276	7400	7523	7647	7770	7894		7 87
14	8018	8141	8265	8388	8512	8635	8759	8883	9006	9130		8 99
15	9253	9377	9500	9624	9747	9871	9995	0118	0242	0365		9 112
16	5460489	0612	0736	0859	0983	1106	1230	1353	1477	1600		
17	1724	1847	1971	2094	2218	2341	2465	2588	2711	2835		
18	2958	3082	3205	3329	3452	3576	3699	3822	3946	4069		
19	4193	4316	4439	4563	4686	4810	4933	5056	5180	5303		
3520	5427	5550	5673	5797	5920	6043	6167	6290	6414	6537		
21	6660	6784	6907	7030	7154	7277	7400	7524	7647	7770		123
22	7894	8017	8140	8263	8387	8510	8633	8757	8880	9003		1 12
23	9126	9250	9373	9496	9620	9743	9866	9989	0113	0236		2 25
24	5470359	0482	0605	0729	0852	0975	1098	1222	1345	1468		3 37
25	1591	1714	1838	1961	2084	2207	2330	2454	2577	2700		4 49
26	2823	2946	3069	3193	3316	3439	3562	3685	3808	3931		5 62
27	4055	4178	4301	4424	4547	4670	4793	4916	5040	5163		6 74
28	5286	5409	5532	5655	5778	5901	6024	6147	6270	6394		7 86
29	6517	6640	6763	6886	7009	7132	7255	7378	7501	7624		8 98
3530	7747	7870	7993	8116	8239	8362	8485	8608	8731	8854	123	
31	8977	9100	9223	9346	9469	9592	9715	9838	9961	0084		
32	5480207	0330	0453	0576	0699	0822	0945	1068	1191	1313		
33	1436	1559	1682	1805	1928	2051	2174	2297	2420	2543		
34	2665	2788	2911	3034	3157	3280	3403	3526	3648	3771		
35	3894	4017	4140	4263	4386	4508	4631	4754	4877	5000		122
36	5123	5245	5368	5491	5614	5737	5859	5982	6105	6228		1 12
37	6351	6473	6596	6719	6842	6964	7087	7210	7333	7456		2 24
38	7578	7701	7824	7947	8069	8192	8315	8437	8560	8683		3 37
39	8806	8928	9051	9174	9296	9419	9542	9665	9787	9910		4 49
3540	5490033	0155	0278	0401	0523	0646	0769	0891	1014	1137		5 61
41	1259	1382	1505	1627	1750	1872	1995	2118	2240	2363		6 73
42	2486	2608	2731	2853	2976	3099	3221	3344	3466	3589		7 85
43	3712	3834	3957	4079	4202	4324	4447	4569	4692	4815		8 98
44	4937	5060	5182	5305	5427	5550	5672	5795	5917	6040		9 110
45	6162	6285	6407	6530	6652	6775	6897	7020	7142	7265		
46	7387	7510	7632	7755	7877	8000	8122	8245	8367	8489		
47	8612	8734	8857	8979	9102	9224	9346	9469	9591	9714		
48	9836	9959	0081	0203	0326	0448	0570	0693	0815	0938		
49	5501060	1182	1305	1427	1549	1672	1794	1917	2039	2161		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

(58)		LOGARITHMS										N. 355 L. 550	
N	0	1	2	3	4	5	6	7	8	9	D	Pro	
3550	5502284	2406	2528	2651	2773	2895	3017	3140	3262	3384			
51	3507	3629	3751	3874	3996	4118	4240	4363	4485	4607			
52	4730	4852	4974	5096	5219	5341	5463	5585	5708	5830			
53	5952	6074	6197	6319	6441	6563	6685	6808	6930	7052			
54	7174	7296	7419	7541	7663	7785	7907	8030	8152	8274			
55	8396	8518	8640	8763	8885	9007	9129	9251	9373	9495			
56	9618	9740	9862	9984	0106	0228	0350	0472	0594	0717			
57	5510839	0961	1083	1205	1327	1449	1571	1693	1815	1937			
58	2059	2181	2304	2426	2548	2670	2792	2914	3036	3158			
59	3280	3402	3524	3646	3768	3890	4012	4134	4256	4378	122		
3560	4500	4622	4744	4866	4988	5110	5232	5354	5476	5598			
61	5720	5842	5964	6086	6208	6329	6451	6573	6695	6817	122		
62	6939	7061	7183	7305	7427	7549	7671	7793	7914	8036	1	12	
63	8158	8280	8402	8524	8646	8768	8890	9011	9133	9255	2	24	
64	9377	9499	9621	9743	9864	9986	0108	0230	0352	0474	3	37	
65	5520595	0717	0839	0961	1083	1204	1326	1448	1570	1692	4	49	
66	1813	1935	2057	2179	2301	2422	2544	2666	2788	2909	5	61	
67	3031	3153	3275	3396	3518	3640	3762	3883	4005	4127	6	73	
68	4248	4370	4492	4614	4735	4857	4979	5100	5222	5344	7	85	
69	5465	5587	5709	5831	5952	6074	6196	6317	6439	6561	8	98	
3570	6682	6804	6925	7047	7169	7290	7412	7534	7655	7777	9	110	
71	7899	8020	8142	8263	8385	8507	8628	8750	8871	8993			
72	9115	9236	9358	9479	9601	9722	9844	9965	0087	0209			
73	5530330	0452	0573	0695	0816	0938	1059	1181	1302	1424			
74	1545	1667	1789	1910	2032	2153	2275	2396	2517	2639			
75	2760	2882	3003	3125	3246	3368	3489	3611	3732	3854			
76	3975	4097	4218	4339	4461	4582	4704	4825	4947	5068			
77	5189	5311	5432	5554	5675	5796	5918	6039	6161	6282			
78	6403	6525	6646	6767	6889	7010	7132	7253	7374	7496			
79	7617	7738	7860	7981	8102	8224	8345	8466	8588	8709			
3580	8830	8952	9073	9194	9315	9437	9558	9679	9801	9922			
81	5540043	0164	0286	0407	0528	0650	0771	0892	1013	1135	121		
82	1256	1377	1498	1620	1741	1862	1983	2104	2226	2347	1	12	
83	2468	2589	2710	2832	2953	3074	3195	3316	3438	3559	2	24	
84	3680	3801	3922	4044	4165	4286	4407	4528	4649	4770	3	36	
85	4892	5013	5134	5255	5376	5497	5618	5740	5861	5982	4	48	
86	6103	6224	6345	6466	6587	6708	6829	6951	7072	7193	5	63	
87	7314	7435	7556	7677	7798	7919	8040	8161	8282	8403	6	73	
88	8524	8645	8766	8887	9008	9130	9251	9372	9493	9614	7	85	
89	9735	9856	9977	0098	0219	0340	0461	0582	0703	0824	8	97	
3590	5550944	1065	1186	1307	1428	1549	1670	1791	1912	2033	121	109	
91	2154	2275	2396	2517	2638	2759	2880	3001	3121	3242			
92	3363	3484	3605	3726	3847	3968	4089	4210	4330	4451			
93	4572	4693	4814	4935	5056	5176	5297	5418	5539	5660			
94	5781	5902	6022	6143	6264	6385	6506	6627	6747	6868			
95	6989	7110	7231	7351	7472	7593	7714	7835	7955	8076			
96	8197	8318	8438	8559	8680	8801	8921	9042	9163	9284			
97	9404	9525	9646	9767	9887	0008	0129	0249	0370	0491			
98	5560612	0732	0853	0974	1094	1215	1336	1456	1577	1698			
99	1818	1939	2060	2180	2301	2422	2542	2663	2784	2904			
N	0	1	2	3	4	5	6	7	8	9	D	Pts	

N	0	1	2	3	4	5	6	7	8	9	D	Pro
3600	5563025	3146	3266	3387	3508	3628	3749	3869	3990	4111		
01	4231	4352	4472	4593	4714	4834	4955	5075	5196	5317		
02	5437	5558	5678	5799	5919	6040	6160	6281	6402	6522		
03	6643	6763	6884	7004	7125	7245	7366	7486	7607	7727		
04	7848	7968	8089	8209	8330	8450	8571	8691	8812	8932		
05	9053	9173	9294	9414	9535	9655	9775	9896	0016	0137		
06	5570257	0378	0498	0619	0739	0859	0980	1100	1221	1341		
07	1461	1582	1702	1823	1943	2063	2184	2304	2425	2545		
08	2665	2786	2906	3026	3147	3267	3387	3508	3628	3748		
09	3869	3989	4109	4230	4350	4470	4591	4711	4831	4952		
3610	5072	5192	5313	5433	5553	5673	5794	5914	6034	6155		
11	6275	6395	6515	6636	6756	6876	6996	7117	7237	7357		120
12	7477	7598	7718	7838	7958	8079	8199	8319	8439	8559		12
13	8680	8800	8920	9040	9160	9281	9401	9521	9641	9761		24
14	9881	0002	0122	0242	0362	0482	0602	0723	0843	0963		36
15	5581083	1203	1323	1443	1564	1684	1804	1924	2044	2164		48
16	2284	2404	2524	2645	2765	2885	3005	3125	3245	3365		60
17	3485	3605	3725	3845	3965	4085	4205	4325	4446	4566		72
18	4686	4806	4926	5046	5166	5286	5406	5526	5646	5766		84
19	5886	6006	6126	6246	6366	6486	6606	6726	6846	6966		96
3620	7086	7206	7326	7446	7566	7686	7805	7925	8045	8165		108
21	8285	8405	8525	8645	8765	8885	9005	9125	9245	9365		
22	9484	9604	9724	9844	9964	0084	0204	0324	0444	0563		
23	5590683	0803	0923	1043	1163	1283	1403	1522	1642	1762		
24	1882	2002	2122	2241	2361	2481	2601	2721	2840	2960		
25	3080	3200	3320	3440	3559	3679	3799	3919	4038	4158		
26	4278	4398	4518	4637	4757	4877	4997	5116	5236	5356		
27	5476	5595	5715	5835	5954	6074	6194	6314	6433	6553		
28	6673	6792	6912	7032	7152	7271	7391	7511	7630	7750		
29	7870	7989	8109	8229	8348	8468	8588	8707	8827	8947		
3630	9066	9186	9306	9425	9545	9664	9784	9904	0023	0143		
31	5600262	0382	0502	0621	0741	0860	0980	1100	1219	1339		119
32	1458	1578	1698	1817	1937	2056	2176	2295	2415	2534		12
33	2654	2774	2893	3013	3132	3252	3371	3491	3610	3730		24
34	3849	3969	4088	4208	4327	4447	4566	4686	4805	4925		36
35	5044	5164	5283	5403	5522	5641	5761	5880	6000	6119		48
36	6239	6358	6478	6597	6716	6836	6955	7075	7194	7314		60
37	7433	7552	7672	7791	7911	8030	8149	8269	8388	8508		72
38	8627	8746	8866	8985	9104	9224	9343	9463	9582	9701		84
39	9821	9940	0059	0179	0298	0417	0537	0656	0775	0895		96
3640	5611014	1133	1252	1372	1491	1610	1730	1849	1968	2088		
41	2207	2326	2445	2565	2684	2803	2922	3042	3161	3280		
42	3399	3519	3638	3757	3876	3996	4115	4234	4353	4472		
43	4592	4711	4830	4949	5069	5188	5307	5426	5545	5665		
44	5784	5903	6022	6141	6260	6380	6499	6618	6737	6856		
45	6975	7094	7214	7333	7452	7571	7690	7809	7928	8048		
46	8167	8286	8405	8524	8643	8762	8881	9000	9119	9239		
47	9358	9477	9596	9715	9834	9953	0072	0191	0310	0429		
48	5620548	0667	0786	0905	1024	1144	1263	1382	1501	1620		
49	1739	1858	1977	2096	2215	2334	2453	2572	2691	2810		119
N	0	1	2	3	4	5	6	7	8	9	D	Pts

(60)

LOGARITHMS

N. 365 L. 562

N	0	1	2	3	4	5	6	7	8	9	D	Pro
3650	5622929	3048	3167	3286	3405	3524	3642	3761	3880	3999		
51	4118	4237	4356	4475	4594	4713	4832	4951	5070	5189		
52	5308	5427	5546	5664	5783	5902	6021	6140	6259	6378		
53	6497	6616	6734	6853	6972	7091	7210	7329	7448	7567		
54	7685	7804	7923	8042	8161	8280	8398	8517	8636	8755		
55	8874	8993	9111	9230	9349	9468	9587	9705	9824	9943		
56	5630062	0181	0299	0418	0537	0656	0775	0893	1012	1131		
57	1250	1368	1487	1606	1725	1843	1962	2081	2200	2318		
58	2437	2556	2674	2793	2912	3031	3149	3268	3387	3505		
59	3624	3743	3861	3980	4099	4218	4336	4455	4574	4692		
3660	4811	4930	5048	5167	5285	5404	5523	5641	5760	5879		
61	5997	6116	6235	6353	6472	6590	6709	6828	6946	7065		
62	7183	7302	7421	7539	7658	7776	7895	8013	8132	8251		
63	8369	8488	8606	8725	8843	8962	9081	9199	9318	9436		
64	9555	9673	9792	9910	0029	0147	0266	0384	0503	0621		
65	5640740	0858	0977	1095	1214	1332	1451	1569	1688	1806		
66	1925	2043	2162	2280	2398	2517	2635	2754	2872	2991		
67	3109	3228	3346	3464	3583	3701	3820	3938	4056	4175		
68	4293	4412	4530	4648	4767	4885	5004	5122	5240	5359		
69	5477	5595	5714	5832	5951	6069	6187	6306	6424	6542		
3670	6661	6779	6897	7016	7134	7252	7371	7489	7607	7726		
71	7844	7962	8080	8199	8317	8435	8554	8672	8790	8908		
72	9027	9145	9263	9382	9500	9618	9736	9855	9973	0091		
73	5650209	0328	0446	0564	0682	0800	0919	1037	1155	1273		
74	1392	1510	1628	1746	1864	1983	2101	2219	2337	2455		
75	2573	2692	2810	2928	3046	3164	3282	3401	3519	3637		
76	3755	3873	3991	4109	4228	4346	4464	4582	4700	4818		
77	4936	5054	5173	5291	5409	5527	5645	5763	5881	5999		
78	6117	6235	6353	6471	6590	6708	6826	6944	7062	7180		
79	7298	7416	7534	7652	7770	7888	8006	8124	8242	8360		
3680	8478	8596	8714	8832	8950	9068	9186	9304	9422	9540		
81	9658	9776	9894	0012	0130	0248	0366	0484	0602	0720		
82	5660838	0956	1074	1192	1310	1428	1545	1663	1781	1899		
83	2017	2135	2253	2371	2489	2607	2725	2843	2960	3078		
84	3196	3314	3432	3550	3668	3786	3903	4021	4139	4257		
85	4375	4493	4611	4728	4846	4964	5082	5200	5318	5435		
86	5553	5671	5789	5907	6025	6142	6260	6378	6496	6614		
87	6731	6849	6967	7085	7203	7320	7438	7556	7674	7791		
88	7909	8027	8145	8262	8380	8498	8616	8733	8851	8969		
89	9087	9204	9322	9440	9557	9675	9793	9911	0028	0146		
3690	5670264	0381	0499	0617	0734	0852	0970	1087	1205	1323		
91	1440	1558	1676	1793	1911	2029	2146	2264	2382	2499		
92	2617	2735	2852	2970	3087	3205	3323	3440	3558	3675		
93	3793	3911	4028	4146	4263	4381	4499	4616	4734	4851		
94	4969	5086	5204	5322	5439	5557	5674	5792	5909	6027		
95	6144	6262	6379	6497	6615	6732	6850	6967	7085	7202		
96	7320	7437	7555	7672	7790	7907	8025	8142	8260	8377		
97	8495	8612	8729	8847	8964	9082	9199	9317	9434	9552		
98	9669	9787	9904	0021	0139	0256	0374	0491	0608	0726		
99	5680843	0961	1078	1196	1313	1430	1548	1665	1782	1900		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

119

1	12
2	24
3	36
4	48
5	60
6	71
7	83
8	95
9	107

118

118

1	12
2	24
3	35
4	47
5	59
6	71
7	83
8	94
9	106

N. 370 L. 568

OF NUMBERS.

(61)

N	O	I	2	3	4	5	6	7	8	9	D	Pro
3700	5682017	2135	2252	2369	2487	2604	2721	2839	2956	3074		
01	3191	3308	3426	3543	3660	3778	3895	4012	4130	4247		
02	4364	4481	4599	4716	4833	4951	5068	5185	5303	5420		
03	5537	5654	5772	5889	6006	6123	6241	6358	6475	6593		
04	6710	6827	6944	7062	7179	7296	7413	7530	7648	7765		
05	7882	7999	8117	8234	8351	8468	8585	8703	8820	8937		
06	9054	9171	9289	9406	9523	9640	9757	9874	9992	0109		
07	5690226	0343	0460	0577	0694	0812	0929	1046	1163	1280		
08	1397	1514	1631	1749	1866	1983	2100	2217	2334	2451		
09	2568	2685	2803	2920	3037	3154	3271	3388	3505	3622		
3710	3739	3856	3973	4090	4207	4324	4441	4558	4675	4793	117	117
11	4910	5027	5144	5261	5378	5495	5612	5729	5846	5963	1	12
12	6080	6197	6314	6431	6548	6665	6782	6899	7016	7133	2	23
13	7249	7366	7483	7600	7717	7834	7951	8068	8185	8302	3	35
14	8419	8536	8653	8770	8887	9004	9121	9237	9354	9471	4	47
15	9588	9705	9822	9939	0056	0173	0290	0406	0523	0640	5	59
16	5700757	0874	0991	1108	1225	1341	1458	1575	1692	1809	6	70
17	1926	2042	2159	2276	2393	2510	2627	2743	2860	2977	7	82
18	3094	3211	3327	3444	3561	3678	3795	3911	4028	4145	8	94
19	4262	4379	4495	4612	4729	4846	4962	5079	5196	5313	9	105
3720	5429	5546	5663	5780	5896	6013	6130	6247	6363	6480		
21	6597	6713	6830	6947	7064	7180	7297	7414	7530	7647		
22	7764	7880	7997	8114	8230	8347	8464	8580	8697	8814		
23	8930	9047	9164	9280	9397	9514	9630	9747	9863	9980		
24	5710097	0213	0330	0447	0563	0680	0796	0913	1030	1146		
25	1263	1379	1496	1613	1729	1846	1962	2079	2195	2312		
26	2429	2545	2662	2778	2895	3011	3128	3244	3361	3477		
27	3594	3710	3827	3943	4060	4177	4293	4410	4526	4643		
28	4759	4876	4992	5109	5225	5341	5458	5574	5691	5807		
29	5924	6040	6157	6273	6390	6506	6623	6739	6855	6972		
3730	7088	7205	7321	7438	7554	7670	7787	7903	8020	8136	116	116
31	8252	8369	8485	8602	8718	8834	8951	9067	9184	9300	1	12
32	9416	9533	9649	9765	9882	9998	0115	0231	0347	0464	2	23
33	5720580	0696	0813	0929	1045	1162	1278	1394	1511	1627	3	35
34	1743	1859	1976	2092	2208	2325	2441	2557	2674	2790	4	46
35	2900	3022	3139	3255	3371	3487	3604	3720	3836	3952	5	58
36	4069	4185	4301	4417	4534	4650	4766	4882	4999	5115	6	70
37	5231	5347	5463	5580	5696	5812	5928	6044	6161	6277	7	81
38	6393	6509	6625	6742	6858	6974	7090	7206	7322	7438	8	93
39	7555	7671	7787	7903	8019	8135	8252	8368	8484	8600	9	104
3740	8716	8832	8948	9064	9180	9297	9413	9529	9645	9761	116	116
41	9877	9993	0109	0225	0341	0457	0574	0690	0806	0922		
42	5731038	1154	1270	1386	1502	1618	1734	1850	1966	2082		
43	2198	2314	2430	2546	2662	2778	2894	3010	3126	3242		
44	3358	3474	3590	3706	3822	3938	4054	4170	4286	4402		
45	4518	4634	4750	4866	4982	5098	5214	5330	5446	5562		
46	5678	5794	5910	6026	6141	6257	6373	6489	6605	6721		
47	6837	6953	7069	7185	7301	7416	7532	7648	7764	7880		
48	7996	8112	8228	8343	8459	8575	8691	8807	8923	9039		
49	9154	9270	9386	9502	9618	9734	9849	9965	0081	0197		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

(62)

LOGARITHMS

N. 375 L. 574

N	O	1	2	3	4	5	6	7	8	9	D	Pro
3750	5740313	0428	0544	0660	0776	0892	1007	1123	1239	1355		
51	1471	1586	1702	1818	1934	2050	2165	2281	2397	2513		
52	2628	2744	2860	2976	3091	3207	3323	3438	3554	3670		
53	3786	3901	4017	4133	4248	4364	4480	4596	4711	4827		
54	4943	5058	5174	5290	5405	5521	5637	5752	5868	5984		
55	6099	6215	6331	6446	6562	6678	6793	6909	7025	7140		
56	7256	7371	7487	7603	7718	7834	7950	8065	8181	8296		
57	8412	8528	8643	8759	8874	8990	9105	9221	9337	9452		
58	9568	9683	9799	9914	0030	0146	0261	0377	0492	0608		
59	5750723	0839	0954	1070	1185	1301	1416	1532	1647	1763		
3760	1878	1994	2109	2225	2340	2456	2571	2687	2802	2918		
61	3033	3149	3264	3380	3495	3611	3726	3842	3957	4072		
62	4188	4303	4419	4534	4650	4765	4881	4996	5111	5227		
63	5342	5458	5573	5688	5804	5919	6035	6150	6265	6381		
64	6496	6612	6727	6842	6958	7073	7188	7304	7419	7534		
65	7650	7765	7881	7996	8111	8227	8342	8457	8573	8688		
66	8803	8918	9034	9149	9264	9380	9495	9610	9726	9841		
67	9956	0071	0187	0302	0417	0533	0648	0763	0878	0994		
68	5761109	1224	1339	1455	1570	1685	1800	1916	2031	2146		
69	2261	2377	2492	2607	2722	2837	2953	3068	3183	3298		
3770	3414	3529	3644	3759	3874	3989	4105	4220	4335	4450		
71	4565	4680	4796	4911	5026	5141	5256	5371	5487	5602		
72	5717	5832	5947	6062	6177	6292	6408	6523	6638	6753		
73	6868	6983	7098	7213	7328	7444	7559	7674	7789	7904		
74	8019	8134	8249	8364	8479	8594	8709	8824	8939	9055		
75	9170	9285	9400	9515	9630	9745	9860	9975	0090	0205		
76	5770320	0435	0550	0665	0780	0895	1010	1125	1240	1355		
77	1470	1585	1700	1815	1930	2045	2160	2275	2390	2505		
78	2620	2734	2849	2964	3079	3194	3309	3424	3539	3654		
79	3760	3884	3999	4114	4229	4343	4458	4573	4688	4803		
3780	4918	5033	5148	5263	5378	5492	5607	5722	5837	5952		
81	6067	6182	6296	6411	6526	6641	6756	6871	6986	7100		
82	7215	7330	7445	7560	7675	7789	7904	8019	8134	8249		
83	8363	8478	8593	8708	8823	8937	9052	9167	9282	9397		
84	9511	9626	9741	9856	9970	0085	0200	0315	0429	0544		
85	5780659	0774	0888	1003	1118	1233	1347	1462	1577	1691		
86	1806	1921	2036	2150	2265	2380	2494	2609	2724	2838		
87	2953	3068	3182	3297	3412	3526	3641	3756	3870	3985		
88	4100	4214	4329	4444	4558	4673	4788	4902	5017	5131		
89	5246	5361	5475	5590	5705	5819	5934	6048	6163	6278		
3790	6392	6507	6621	6736	6850	6965	7080	7194	7309	7423		
91	7538	7652	7767	7882	7996	8111	8225	8340	8454	8569		
92	8683	8798	8912	9027	9141	9256	9370	9485	9599	9714		
93	9828	9943	0057	0172	0286	0401	0515	0630	0744	0859		
94	5790973	1088	1202	1317	1431	1546	1660	1774	1889	2003		
95	2118	2232	2347	2461	2576	2690	2804	2919	3033	3148		
96	3262	3376	3491	3605	3720	3834	3948	4063	4177	4292		
97	4406	4520	4635	4749	4863	4978	5092	5207	5321	5435		
98	5550	5664	5778	5893	6007	6121	6236	6350	6464	6579		
99	6693	6807	6922	7036	7150	7264	7379	7493	7607	7722		
N	O	1	2	3	4	5	6	7	8	9	D	Pts

116

1	12
2	23
3	35
4	46
5	58
6	70
7	81
8	93
9	104

115

115

1	12
2	23
3	35
4	46
5	58
6	69
7	81
8	92
9	104

N. 380 L. 579

OF NUMBERS.

(63)

N	O	I	2	3	4	5	6	7	8	9	D	Pro
3800	5797836	7950	8065	8179	8293	8407	8522	8636	8750	8864		
01	8979	9093	9207	9321	9436	9550	9664	9778	9893	0007		
02	5800121	0235	0350	0464	0578	0692	0806	0921	1035	1149		
03	1263	1377	1492	1606	1720	1834	1948	2063	2177	2291		
04	2405	2519	2633	2748	2862	2976	3090	3204	3318	3432		
05	3547	3661	3775	3889	4003	4117	4231	4346	4460	4574		
06	4688	4802	4916	5030	5144	5258	5372	5487	5601	5715		
07	5829	5943	6057	6171	6285	6399	6513	6627	6741	6855		
08	6969	7083	7197	7312	7426	7540	7654	7768	7882	7996		
09	8110	8224	8338	8452	8566	8680	8794	8908	9022	9136	114	
3810	9250	9364	9478	9592	9706	9820	9934	0048	0162	0276		
11	5810389	0503	0617	0731	0845	0959	1073	1187	1301	1415		114
12	1529	1643	1757	1871	1985	2099	2212	2326	2440	2554	1	11
13	2668	2782	2896	3010	3124	3238	3351	3465	3579	3693	2	23
14	3807	3921	4035	4148	4262	4376	4490	4604	4718	4832	3	34
15	4945	5059	5173	5287	5401	5515	5628	5742	5856	5970	4	46
16	6084	6197	6311	6425	6539	6653	6766	6880	6994	7108	5	57
17	7222	7335	7449	7563	7677	7790	7904	8018	8132	8245	6	68
18	8359	8473	8587	8700	8814	8928	9042	9155	9269	9383	7	80
19	9497	9610	9724	9838	9951	0065	0179	0293	0406	0520	8	91
3820	5820634	0747	0861	0975	1088	1202	1316	1429	1543	1657	9	103
21	1770	1884	1998	2111	2225	2339	2452	2566	2680	2793		
22	2907	3020	3134	3248	3361	3475	3589	3702	3816	3929		
23	4043	4157	4270	4384	4497	4611	4725	4838	4952	5065		
24	5179	5292	5406	5520	5633	5747	5860	5974	6087	6201		
25	6314	6428	6541	6655	6769	6882	6996	7109	7223	7336		
26	7450	7563	7677	7790	7904	8017	8131	8244	8358	8471		
27	8585	8698	8812	8925	9039	9152	9265	9379	9492	9606		
28	9719	9833	9946	0060	0173	0287	0400	0513	0627	0740		
29	5830854	0967	1081	1194	1307	1421	1534	1648	1761	1874		
3830	1988	2101	2215	2328	2441	2555	2668	2781	2895	3008		
31	3122	3235	3348	3462	3575	3688	3802	3915	4028	4142		113
32	4255	4368	4482	4595	4708	4822	4935	5048	5162	5275	1	11
33	5388	5501	5615	5728	5841	5955	6068	6181	6295	6408	2	23
34	6521	6634	6748	6861	6974	7087	7201	7314	7427	7540	3	34
35	7654	7767	7880	7993	8107	8220	8333	8446	8560	8673	4	45
36	8786	8899	9012	9126	9239	9352	9465	9578	9692	9805	5	57
37	9918	0031	0144	0258	0371	0484	0597	0710	0823	0937	6	68
38	5841050	1163	1276	1389	1502	1615	1729	1842	1955	2068	7	79
39	2181	2294	2407	2520	2634	2747	2860	2973	3086	3199	8	90
3840	3312	3425	3538	3652	3765	3878	3991	4104	4217	4330	9	102
41	4443	4556	4669	4782	4895	5008	5121	5234	5348	5461		
42	5574	5687	5800	5913	6026	6139	6252	6365	6478	6591		
43	6704	6817	6930	7043	7156	7269	7382	7495	7608	7721		
44	7834	7947	8060	8173	8286	8399	8512	8625	8738	8850		
45	8963	9076	9189	9302	9415	9528	9641	9754	9867	9980		
46	5850093	0206	0319	0432	0544	0657	0770	0883	0996	1109		
47	1222	1335	1448	1561	1673	1786	1899	2012	2125	2238		
48	2351	2463	2576	2689	2802	2915	3028	3141	3253	3366		
49	3479	3592	3705	3818	3930	4043	4156	4269	4382	4494		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

(64) LOGARITHMS											N. 385 L. 585	
N	0	1	2	3	4	5	6	7	8	9	D	Pts
3850	5854607	4720	4833	4946	5058	5171	5284	5397	5510	5622		
51	5735	5848	5961	6073	6186	6299	6412	6525	6637	6750		
52	6863	6976	7088	7201	7314	7426	7539	7652	7765	7877		
53	7990	8103	8216	8328	8441	8554	8666	8779	8892	9004		
54	9117	9230	9342	9455	9568	9681	9793	9906	0019	0131		
55	5860244	0356	0469	0582	0694	0807	0920	1032	1145	1258		
56	1370	1483	1596	1708	1821	1933	2046	2159	2271	2384		
57	2496	2609	2722	2834	2947	3059	3172	3285	3397	3510		
58	3622	3735	3847	3960	4072	4185	4298	4410	4523	4635		
59	4748	4860	4973	5085	5198	5310	5423	5535	5648	5761		
3860	5873	5986	6098	6211	6323	6436	6548	6661	6773	6886		
61	6998	7110	7223	7335	7448	7560	7673	7785	7898	8010		
62	8123	8235	8348	8460	8572	8685	8797	8910	9022	9135		
63	9247	9360	9472	9584	9697	9809	9922	0034	0146	0259		
64	5870371	0484	0596	0708	0821	0933	1045	1158	1270	1383		
65	1495	1607	1720	1832	1944	2057	2169	2281	2394	2506		
66	2618	2731	2843	2955	3068	3180	3292	3405	3517	3629		
67	3742	3854	3966	4079	4191	4303	4416	4528	4640	4752		
68	4865	4977	5089	5201	5314	5426	5538	5651	5763	5875		
69	5987	6100	6212	6324	6436	6549	6661	6773	6885	6997		
3870	7110	7222	7334	7446	7559	7671	7783	7895	8007	8120		
71	8232	8344	8456	8568	8680	8793	8905	9017	9129	9241		
72	9353	9466	9578	9690	9802	9914	0026	0139	0251	0363		
73	5880475	0587	0699	0811	0923	1036	1148	1260	1372	1484		
74	1596	1708	1820	1932	2045	2157	2269	2381	2493	2605		
75	2717	2829	2941	3053	3165	3277	3389	3502	3614	3726		
76	3838	3950	4062	4174	4286	4398	4510	4622	4734	4846		
77	4958	5070	5182	5294	5406	5518	5630	5742	5854	5966		
78	6078	6190	6302	6414	6526	6638	6750	6862	6974	7086		
79	7198	7310	7422	7534	7646	7758	7870	7981	8093	8205		
3880	8317	8429	8541	8653	8765	8877	8989	9101	9213	9325		
81	9436	9548	9660	9772	9884	9996	0108	0220	0332	0443		
82	5890555	0667	0779	0891	1003	1115	1227	1338	1450	1562		
83	1674	1786	1898	2009	2121	2233	2345	2457	2569	2680		
84	2792	2904	3016	3128	3239	3351	3463	3575	3687	3798		
85	3910	4022	4134	4246	4357	4469	4581	4693	4804	4916		
86	5028	5140	5251	5363	5475	5587	5698	5810	5922	6034		
87	6145	6257	6369	6481	6592	6704	6816	6927	7039	7151		
88	7263	7374	7486	7598	7709	7821	7933	8044	8156	8268		
89	8379	8491	8603	8714	8826	8938	9049	9161	9273	9384		
3890	9496	9608	9719	9831	9943	0054	0166	0277	0389	0501		
91	5900612	0724	0836	0947	1059	1170	1282	1394	1505	1617		
92	1728	1840	1951	2063	2175	2286	2398	2509	2621	2732		
93	2844	2956	3067	3179	3290	3402	3513	3625	3736	3848		
94	3959	4071	4183	4294	4406	4517	4629	4740	4852	4963		
95	5075	5186	5298	5409	5521	5632	5744	5855	5967	6078		
96	6189	6301	6413	6524	6635	6747	6858	6970	7081	7193		
97	7304	7415	7527	7638	7750	7861	7973	8084	8196	8307		
98	8418	8530	8641	8753	8864	8975	9087	9198	9310	9421		
99	9532	9644	9755	9866	9978	0089	0201	0312	0423	0535		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

I 13	
1	11
2	23
3	34
4	45
5	57
6	68
7	79
8	90
9	102

I 12

I 12	
1	11
2	22
3	34
4	45
5	56
6	67
7	78
8	90
9	101

N	0	1	2	3	4	5	6	7	8	9	D	Pro
3900	5910646	0757	0869	0980	1091	1203	1314	1426	1537	1648		
01	1760	1871	1982	2093	2205	2316	2427	2539	2650	2761		
02	2873	2984	3095	3207	3318	3429	3540	3652	3763	3874		
03	3986	4097	4208	4319	4431	4542	4653	4764	4876	4987		
04	5098	5209	5321	5432	5543	5654	5765	5877	5988	6099		
05	6210	6322	6433	6544	6655	6766	6878	6989	7100	7211		
06	7322	7434	7545	7656	7767	7878	7989	8101	8212	8323		
07	8434	8545	8656	8768	8879	8990	9101	9212	9323	9434		
08	9546	9657	9768	9879	9990	0101	0212	0323	0434	0546		
09	5920657	0768	0879	0990	1101	1212	1323	1434	1545	1656		
3910	1768	1879	1990	2101	2212	2323	2434	2545	2656	2767		
11	2878	2989	3100	3211	3322	3433	3544	3655	3766	3877	III	III
12	3988	4099	4210	4321	4433	4544	4655	4766	4876	4987	1	11
13	5098	5209	5320	5431	5542	5653	5764	5875	5986	6097	2	22
14	6208	6319	6430	6541	6652	6763	6874	6985	7096	7207	3	33
15	7318	7429	7540	7650	7761	7872	7983	8094	8205	8316	4	44
16	8427	8538	8649	8760	8870	8981	9092	9203	9314	9425	5	56
17	9536	9647	9757	9868	9979	0090	0201	0312	0423	0533	6	67
18	5930644	0755	0866	0977	1088	1199	1309	1420	1531	1642	7	78
19	1753	1863	1974	2085	2196	2307	2417	2528	2639	2750	8	89
3920	2861	2971	3082	3193	3304	3415	3525	3636	3747	3858	9	100
21	3968	4079	4190	4301	4411	4522	4633	4744	4854	4965		
22	5076	5187	5297	5408	5519	5630	5740	5851	5962	6072		
23	6183	6294	6404	6515	6626	6737	6847	6958	7069	7179		
24	7290	7401	7511	7622	7733	7843	7954	8065	8175	8286		
25	8397	8507	8618	8729	8839	8950	9060	9171	9282	9392		
26	9503	9614	9724	9835	9945	0056	0167	0277	0388	0498		
27	5940609	0720	0830	0941	1051	1162	1273	1383	1494	1604		
28	1715	1825	1936	2046	2157	2268	2378	2489	2599	2710		
29	2820	2931	3041	3152	3262	3373	3483	3594	3704	3815		
3930	3926	4036	4147	4257	4368	4478	4588	4699	4809	4920		
31	5030	5141	5251	5362	5472	5583	5693	5804	5914	6025	IIO	IIO
32	6135	6246	6356	6466	6577	6687	6798	6908	7019	7129	1	11
33	7239	7350	7460	7571	7681	7792	7902	8012	8123	8233	2	22
34	8344	8454	8564	8675	8785	8895	9006	9116	9227	9337	3	33
35	9447	9558	9668	9778	9889	9999	0110	0220	0330	0441	4	44
36	5950551	0661	0772	0882	0992	1103	1213	1323	1434	1544	5	55
37	1654	1764	1875	1985	2095	2206	2316	2426	2537	2647	6	66
38	2757	2867	2978	3088	3198	3308	3419	3529	3639	3750	7	77
39	3860	3970	4080	4191	4301	4411	4521	4632	4742	4852	8	88
3940	4962	5072	5183	5293	5403	5513	5624	5734	5844	5954	9	99
41	6064	6175	6285	6395	6505	6615	6725	6836	6946	7056		
42	7166	7276	7387	7497	7607	7717	7827	7937	8047	8158		
43	8268	8378	8488	8598	8708	8818	8929	9039	9149	9259		
44	9369	9479	9589	9699	9810	9920	0030	0140	0250	0360		
45	5960470	0580	0690	0800	0910	1020	1131	1241	1351	1461		
46	1571	1681	1791	1901	2011	2121	2231	2341	2451	2561	IIO	IIO
47	2671	2781	2891	3001	3111	3221	3331	3441	3551	3661		
48	3771	3881	3991	4101	4211	4321	4431	4541	4651	4761		
49	4871	4981	5091	5201	5311	5421	5531	5641	5751	5861		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

N	0	1	2	3	4	5	6	7	8	9	D	Pro
3950	5965971	6081	6191	6301	6411	6521	6631	6741	6850	6960		
51	7070	7180	7290	7400	7510	7620	7730	7840	7950	8059		
52	8169	8279	8389	8499	8609	8719	8829	8939	9048	9158		
53	9268	9378	9488	9598	9708	9817	9927	0037	0147	0257		
54	5970367	0476	0586	0696	0806	0916	1026	1135	1245	1355		
55	1465	1575	1684	1794	1904	2014	2124	2233	2343	2453		
56	2563	2673	2782	2892	3002	3112	3221	3331	3441	3551		
57	3661	3770	3880	3990	4099	4209	4319	4429	4538	4648		
58	4758	4868	4977	5087	5197	5306	5416	5526	5636	5745		
59	5855	5965	6074	6184	6294	6403	6513	6623	6733	6842		
3960	6952	7062	7171	7281	7391	7500	7610	7719	7829	7939		
61	8048	8158	8268	8377	8487	8597	8706	8816	8925	9035		
62	9145	9254	9364	9474	9583	9693	9802	9912	0022	0131		
63	5980241	0350	0460	0569	0679	0789	0898	1008	1117	1227		
64	1336	1446	1556	1665	1775	1884	1994	2103	2213	2322		
65	2432	2541	2651	2761	2870	2980	3089	3199	3308	3418		
66	3527	3637	3746	3856	3965	4075	4184	4294	4403	4513		
67	4622	4731	4841	4950	5060	5169	5279	5388	5498	5607		
68	5717	5826	5936	6045	6154	6264	6373	6483	6592	6702		
69	6811	6920	7030	7139	7249	7358	7467	7577	7686	7796		
3970	7905	8014	8124	8233	8343	8452	8561	8671	8780	8890		
71	8999	9108	9218	9327	9436	9546	9655	9764	9874	9983		
72	5990092	0202	0311	0420	0530	0639	0748	0858	0967	1076		
73	1186	1295	1404	1514	1623	1732	1841	1951	2060	2169		
74	2279	2388	2497	2606	2716	2825	2934	3044	3153	3262		
75	3371	3481	3590	3699	3808	3918	4027	4136	4245	4355		
76	4464	4573	4682	4791	4901	5010	5119	5228	5338	5447		
77	5556	5665	5774	5884	5993	6102	6211	6320	6429	6539		
78	6648	6757	6866	6975	7084	7194	7303	7412	7521	7630		
79	7739	7849	7958	8067	8176	8285	8394	8503	8612	8722		
3980	8831	8940	9049	9158	9267	9376	9485	9594	9704	9813		
81	9922	0031	0140	0249	0358	0467	0576	0685	0794	0903		
82	6001013	1122	1231	1340	1449	1558	1667	1776	1885	1994		
83	2103	2212	2321	2430	2539	2648	2757	2866	2975	3084		
84	3193	3302	3411	3520	3629	3738	3847	3956	4065	4174		
85	4283	4392	4501	4610	4719	4828	4937	5046	5155	5264		
86	5373	5482	5591	5700	5809	5918	6027	6136	6244	6353		
87	6462	6571	6680	6789	6898	7007	7116	7225	7334	7443		
88	7551	7660	7769	7878	7987	8096	8205	8314	8423	8531		
89	8640	8749	8858	8967	9076	9185	9294	9402	9511	9620		
3990	9729	9838	9947	0055	0164	0273	0382	0491	0600	0708		
91	6010817	0926	1035	1144	1253	1361	1470	1579	1688	1797		
92	1905	2014	2123	2232	2340	2449	2558	2667	2776	2884		
93	2993	3102	3211	3319	3428	3537	3646	3754	3863	3972		
94	4081	4189	4298	4407	4516	4624	4733	4842	4950	5059		
95	5168	5277	5385	5494	5603	5711	5820	5929	6037	6146		
96	6255	6363	6472	6581	6690	6798	6907	7016	7124	7233		
97	7341	7450	7559	7667	7776	7885	7993	8102	8211	8319		
98	8428	8537	8645	8754	8862	8971	9080	9188	9297	9405		
99	9514	9623	9731	9840	9948	0057	0166	0274	0383	0491		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

110

11

22

33

44

55

66

77

88

99

109

11

22

33

44

55

66

77

88

99

109

N. 400 L. 602

OF NUMBERS.

(67)

N	O	I	2	3	4	5	6	7	8	9	D	Pro
4000	6020600	0708	0817	0926	1034	1143	1251	1360	1468	1577		
01	1686	1794	1903	2011	2120	2228	2337	2445	2554	2662		
02	2771	2879	2988	3096	3205	3313	3422	3530	3639	3747		
03	3856	3964	4073	4181	4290	4398	4507	4615	4724	4832		
04	4941	5049	5158	5266	5375	5483	5591	5700	5808	5917		
05	6025	6134	6242	6351	6459	6567	6676	6784	6893	7001		
06	7109	7218	7326	7435	7543	7651	7760	7868	7977	8085		
07	8193	8302	8410	8519	8627	8735	8844	8952	9060	9169		
08	9277	9385	9494	9602	9711	9819	9927	0036	0144	0252		
09	6030361	0469	0577	0686	0794	0902	1010	1119	1227	1335		
4010	1444	1552	1660	1769	1877	1985	2093	2202	2310	2418		
11	2527	2635	2743	2851	2960	3068	3176	3284	3393	3501		
12	3609	3717	3826	3934	4042	4150	4259	4367	4475	4583		
13	4692	4800	4908	5016	5124	5233	5341	5449	5557	5665		
14	5774	5882	5990	6098	6206	6315	6423	6531	6639	6747		
15	6855	6964	7072	7180	7288	7396	7504	7613	7721	7829		
16	7937	8045	8153	8261	8370	8478	8586	8694	8802	8910		
17	9018	9126	9235	9343	9451	9559	9667	9775	9883	9991		
18	6040099	0207	0315	0424	0532	0640	0748	0856	0964	1072		
19	1180	1288	1396	1504	1612	1720	1828	1936	2044	2152		
4020	2261	2369	2477	2585	2693	2801	2909	3017	3125	3233		
21	3341	3449	3557	3665	3773	3881	3989	4097	4205	4313		
22	4421	4529	4637	4745	4853	4961	5068	5176	5284	5392		
23	5500	5608	5716	5824	5932	6040	6148	6256	6364	6472		
24	6580	6688	6796	6903	7011	7119	7227	7335	7443	7551		
25	7659	7767	7875	7983	8090	8198	8306	8414	8522	8630		
26	8738	8846	8953	9061	9169	9277	9385	9493	9601	9708		
27	9816	9924	0032	0140	0248	0355	0463	0571	0679	0787		
28	6050895	1002	1110	1218	1326	1434	1541	1649	1757	1865		
29	1973	2080	2188	2296	2404	2512	2619	2727	2835	2943		
4030	3050	3158	3266	3374	3482	3589	3697	3805	3912	4020		
31	4128	4236	4343	4451	4559	4667	4774	4882	4990	5098		
32	5205	5313	5421	5528	5636	5744	5851	5959	6067	6175		
33	6282	6390	6498	6605	6713	6821	6928	7036	7144	7251		
34	7359	7467	7574	7682	7790	7897	8005	8112	8220	8328		
35	8435	8543	8651	8758	8866	8974	9081	9189	9296	9404		
36	9512	9619	9727	9834	9942	0050	0157	0265	0372	0480		
37	6060587	0695	0803	0910	1018	1125	1233	1340	1448	1556		
38	1663	1771	1878	1986	2093	2201	2308	2416	2523	2631		
39	2739	2846	2954	3061	3169	3276	3384	3491	3599	3706		
4040	3814	3921	4029	4136	4244	4351	4459	4566	4674	4781		
41	4889	4996	5103	5211	5318	5426	5533	5641	5748	5856		
42	5963	6071	6178	6285	6393	6500	6608	6715	6823	6930		
43	7037	7145	7252	7360	7467	7574	7682	7789	7897	8004		
44	8111	8219	8326	8434	8541	8648	8756	8863	8971	9078		
45	9185	9293	9400	9507	9615	9722	9829	9937	0044	0151		
46	6070259	0366	0473	0581	0688	0795	0903	1010	1117	1225		
47	1332	1439	1547	1654	1761	1869	1976	2083	2190	2298		
48	2405	2512	2620	2727	2834	2941	3049	3156	3263	3371		
49	3478	3585	3692	3800	3907	4014	4121	4229	4336	4443		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

108

1	11
2	22
3	32
4	43
5	54
6	65
7	76
8	86
9	97

108

107

1	11
2	21
3	32
4	43
5	54
6	64
7	75
8	86
9	96

(68)

LOGARITHMS

N. 405 L. 607

N	0	1	2	3	4	5	6	7	8	9	D	Pro
4050	6074550	4657	4765	4872	4979	5086	5194	5301	5408	5515		
51	5622	5730	5837	5944	6051	6158	6266	6373	6480	6587		
52	6694	6802	6909	7016	7123	7230	7337	7445	7552	7659		
53	7766	7873	7980	8087	8195	8302	8409	8516	8623	8730		
54	8837	8945	9052	9159	9266	9373	9480	9587	9694	9801		
55	9909	0016	0123	0230	0337	0444	0551	0658	0765	0872		
56	6080979	1087	1194	1301	1408	1515	1622	1729	1836	1943		
57	2050	2157	2264	2371	2478	2585	2692	2799	2906	3013		
58	3120	3227	3334	3441	3548	3656	3763	3870	3977	4084	107	
59	4191	4298	4404	4511	4618	4725	4832	4939	5046	5153		
4060	5260	5367	5474	5581	5688	5795	5902	6009	6116	6223		
61	6330	6437	6544	6651	6758	6865	6972	7078	7185	7292		
62	7399	7506	7613	7720	7827	7934	8041	8148	8254	8361		
63	8468	8575	8682	8789	8896	9003	9110	9216	9323	9430		
64	9537	9644	9751	9858	9964	0071	0178	0285	0392	0499		
65	6090605	0712	0819	0926	1033	1140	1246	1353	1460	1567		
66	1674	1781	1887	1994	2101	2208	2315	2421	2528	2635		
67	2742	2849	2955	3062	3169	3276	3382	3489	3596	3703		
68	3809	3916	4023	4130	4236	4343	4450	4557	4663	4770		
69	4877	4984	5090	5197	5304	5411	5517	5624	5731	5837		
4070	5944	6051	6157	6264	6371	6478	6584	6691	6798	6904		
71	7011	7118	7224	7331	7438	7544	7651	7758	7864	7971		
72	8078	8184	8291	8398	8504	8611	8718	8824	8931	9037		
73	9144	9251	9357	9464	9571	9677	9784	9890	9997	0104		
74	6100210	0317	0423	0530	0637	0743	0850	0956	1063	1170		
75	1276	1383	1489	1596	1702	1809	1916	2022	2129	2235		
76	2342	2448	2555	2661	2768	2874	2981	3088	3194	3301		
77	3407	3514	3620	3727	3833	3940	4046	4153	4259	4366		
78	4472	4579	4685	4792	4898	5005	5111	5218	5324	5431		
79	5537	5644	5750	5856	5963	6069	6176	6282	6389	6495		
4080	6602	6708	6815	6921	7027	7134	7240	7347	7453	7560		
81	7666	7772	7879	7985	8092	8198	8304	8411	8517	8624		
82	8730	8836	8943	9049	9156	9262	9368	9475	9581	9687		
83	9794	9900	0007	0113	0219	0326	0432	0538	0645	0751		
84	6110857	0964	1070	1176	1283	1389	1495	1602	1708	1814		
85	1921	2027	2133	2240	2346	2452	2558	2665	2771	2877		
86	2984	3090	3196	3302	3409	3515	3621	3728	3834	3940		
87	4046	4153	4259	4365	4471	4578	4684	4790	4896	5003		
88	5109	5215	5321	5428	5534	5640	5746	5852	5959	6065		
89	6171	6277	6384	6490	6596	6702	6808	6915	7021	7127		
4090	7233	7339	7445	7552	7658	7764	7870	7976	8082	8189		
91	8295	8401	8507	8613	8719	8826	8932	9038	9144	9250		
92	9356	9462	9569	9675	9781	9887	9993	0099	0205	0311		
93	6120417	0524	0630	0736	0842	0948	1054	1160	1266	1372		
94	1478	1584	1691	1797	1903	2009	2115	2221	2327	2433		
95	2539	2645	2751	2857	2963	3069	3175	3281	3387	3493		
96	3599	3706	3812	3918	4024	4130	4236	4342	4448	4554		
97	4660	4766	4872	4978	5084	5190	5296	5402	5508	5614		
98	5720	5826	5931	6037	6143	6249	6355	6461	6567	6673		
99	6779	6885	6991	7097	7203	7309	7415	7521	7627	7733		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

107

1	11
2	21
3	32
4	43
5	54
6	64
7	75
8	86
9	96

106

1	11
2	21
3	32
4	42
5	53
6	64
7	74
8	85
9	95

106

N	O	I	2	3	4	5	6	7	8	9	D	Pro
4100	6127839	7944	8050	8156	8262	8368	8474	8580	8686	8792		
01	8898	9004	9109	9215	9321	9427	9533	9639	9745	9851		
02	9957	0062	0168	0274	0380	0486	0592	0698	0803	0909		
03	6131015	1121	1227	1333	1439	1544	1650	1756	1862	1968		
04	2074	2179	2285	2391	2497	2603	2708	2814	2920	3026		
05	3132	3237	3343	3449	3555	3661	3766	3872	3978	4084		
06	4189	4295	4401	4507	4613	4718	4824	4930	5036	5141		
07	5247	5353	5459	5564	5670	5776	5881	5987	6093	6199		
08	6304	6410	6516	6621	6727	6833	6939	7044	7150	7256		
09	7361	7467	7573	7678	7784	7890	7996	8101	8207	8313		
4110	8418	8524	8630	8735	8841	8947	9052	9158	9263	9369		106
11	9475	9580	9686	9792	9897	0003	0109	0214	0320	0425		11
12	6140531	0637	0742	0848	0954	1059	1165	1270	1376	1482		21
13	1587	1693	1798	1904	2009	2115	2221	2326	2432	2537		32
14	2643	2748	2854	2960	3065	3171	3276	3382	3487	3593		42
15	3698	3804	3909	4015	4121	4226	4332	4437	4543	4648		53
16	4754	4859	4965	5070	5176	5281	5387	5492	5598	5703		64
17	5809	5914	6020	6125	6231	6336	6442	6547	6652	6758		74
18	6863	6969	7074	7180	7285	7391	7496	7602	7707	7812		85
19	7918	8023	8129	8234	8340	8445	8550	8656	8761	8867		95
4120	8972	9078	9183	9288	9394	9499	9605	9710	9815	9921		
21	6150026	0132	0237	0342	0448	0553	0658	0764	0869	0975		
22	1080	1185	1291	1396	1501	1607	1712	1817	1923	2028		
23	2133	2239	2344	2449	2555	2660	2765	2871	2976	3081		
24	3187	3292	3397	3502	3608	3713	3818	3924	4029	4134		
25	4240	4345	4450	4555	4661	4766	4871	4976	5082	5187		
26	5292	5397	5503	5608	5713	5818	5924	6029	6134	6239		
27	6345	6450	6555	6660	6766	6871	6976	7081	7186	7292		
28	7397	7502	7607	7712	7818	7923	8028	8133	8238	8344		
29	8449	8554	8659	8764	8870	8975	9080	9185	9290	9395		
4130	9501	9606	9711	9816	9921	0026	0131	0237	0342	0447		105
31	6160552	0657	0762	0867	0972	1078	1183	1288	1393	1498		11
32	1603	1708	1813	1918	2024	2129	2234	2339	2444	2549		21
33	2654	2759	2864	2969	3074	3179	3284	3390	3495	3600		32
34	3705	3810	3915	4020	4125	4230	4335	4440	4545	4650		42
35	4755	4860	4965	5070	5175	5280	5385	5490	5595	5700		53
36	5805	5910	6015	6120	6225	6330	6435	6540	6645	6750		63
37	6855	6960	7065	7170	7275	7380	7485	7590	7695	7800		74
38	7905	8010	8115	8220	8325	8430	8535	8639	8744	8849		84
39	8954	9059	9164	9269	9374	9479	9584	9689	9794	9899		95
4140	6170003	0108	0213	0318	0423	0528	0633	0738	0843	0947		
41	1052	1157	1262	1367	1472	1577	1682	1786	1891	1996		
42	2101	2206	2311	2415	2520	2625	2730	2835	2940	3045		
43	3149	3254	3359	3464	3569	3673	3778	3883	3988	4093		
44	4197	4302	4407	4512	4617	4721	4826	4931	5036	5141		
45	5245	5350	5455	5560	5664	5769	5874	5979	6083	6188		
46	6293	6398	6502	6607	6712	6817	6921	7026	7131	7236		
47	7340	7445	7550	7655	7759	7864	7969	8073	8178	8283		
48	8387	8492	8597	8702	8806	8911	9016	9120	9225	9330		
49	9434	9539	9644	9748	9853	9958	0062	0167	0272	0376		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

(70) LOGARITHMS N. 415 L. 618											
N	0	1	2	3	4	5	6	7	8	9	D Pro
4150	6180481	0586	0690	0795	0900	1004	1109	1213	1318	1423	
51	1527	1632	1737	1841	1946	2050	2155	2260	2364	2469	
52	2573	2678	2783	2887	2992	3096	3201	3306	3410	3515	
53	3619	3724	3828	3933	4038	4142	4247	4351	4456	4560	
54	4665	4769	4874	4979	5083	5188	5292	5397	5501	5606	
55	5710	5815	5919	6024	6128	6233	6337	6442	6546	6651	
56	6755	6860	6964	7069	7173	7278	7382	7487	7591	7696	
57	7800	7905	8009	8114	8218	8323	8427	8531	8636	8740	
58	8845	8949	9054	9158	9263	9367	9471	9576	9680	9785	
59	9889	9994	0098	0202	0307	0411	0516	0620	0725	0829	
4160	6190933	1038	1142	1246	1351	1455	1560	1664	1768	1873	
61	1977	2082	2186	2290	2395	2499	2603	2708	2812	2916	
62	3021	3125	3229	3334	3438	3542	3647	3751	3855	3960	
63	4064	4168	4273	4377	4481	4586	4690	4794	4899	5003	
64	5107	5212	5316	5420	5524	5629	5733	5837	5942	6046	
65	6150	6254	6359	6463	6567	6671	6776	6880	6984	7088	
66	7193	7297	7401	7505	7610	7714	7818	7922	8027	8131	
67	8235	8339	8443	8548	8652	8756	8860	8964	9069	9173	
68	9277	9381	9485	9590	9694	9798	9902	0006	0111	0215	
69	6200319	0423	0527	0631	0736	0840	0944	1048	1152	1256	
4170	1361	1465	1569	1673	1777	1881	1985	2090	2194	2298	
71	2402	2506	2610	2714	2818	2922	3027	3131	3235	3339	
72	3443	3547	3651	3755	3859	3963	4068	4172	4276	4380	
73	4484	4588	4692	4796	4900	5004	5108	5212	5316	5420	
74	5524	5628	5733	5837	5941	6045	6149	6253	6357	6461	
75	6565	6669	6773	6877	6981	7085	7189	7293	7397	7501	104
76	7605	7709	7813	7917	8021	8125	8229	8333	8437	8541	
77	8645	8749	8853	8957	9061	9165	9269	9373	9476	9580	
78	9684	9788	9892	9996	0100	0204	0308	0412	0516	0620	
79	6210724	0828	0932	1035	1139	1243	1347	1451	1555	1659	
4180	1763	1867	1971	2075	2178	2282	2386	2490	2594	2698	
81	2802	2906	3009	3113	3217	3321	3425	3529	3633	3736	
82	3840	3944	4048	4152	4256	4359	4463	4567	4671	4775	
83	4879	4982	5086	5190	5294	5398	5502	5605	5709	5813	
84	5917	6021	6124	6228	6332	6436	6540	6643	6747	6851	
85	6955	7058	7162	7266	7370	7473	7577	7681	7785	7888	
86	7992	8096	8200	8303	8407	8511	8615	8718	8822	8926	
87	9030	9133	9237	9341	9444	9548	9652	9756	9859	9963	
88	6220067	0170	0274	0378	0482	0585	0689	0793	0896	1000	
89	1104	1207	1311	1415	1518	1622	1726	1829	1933	2037	
4190	2140	2244	2348	2451	2555	2658	2762	2866	2969	3073	
91	3177	3280	3384	3487	3591	3695	3798	3902	4006	4109	
92	4213	4316	4420	4524	4627	4731	4834	4938	5041	5145	
93	5249	5352	5456	5559	5663	5766	5870	5974	6077	6181	
94	6284	6388	6491	6595	6698	6802	6906	7009	7113	7216	
95	7320	7423	7527	7630	7734	7837	7941	8044	8148	8251	
96	8355	8458	8562	8665	8769	8872	8976	9079	9183	9286	
97	9390	9493	9597	9700	9804	9907	0011	0114	0217	0321	
98	6230424	0528	0631	0735	0838	0942	1045	1148	1252	1355	
99	1459	1562	1666	1769	1872	1976	2079	2183	2286	2389	
N	0	1	2	3	4	5	6	7	8	9	D Pts

105	
1	11
2	21
3	31
4	42
5	53
6	63
7	74
8	84
9	95

104

104	
1	10
2	21
3	31
4	42
5	52
6	62
7	73
8	83
9	94

N. 420 L. 623											OF NUMBERS.		(71)	
N	O	I	2	3	4	5	6	7	8	9	D	Pro		
4200	6232493	2596	2700	2803	2906	3010	3113	3217	3320	3423				
01	3527	3630	3734	3837	3940	4044	4147	4250	4354	4457				
02	4560	4664	4767	4871	4974	5077	5181	5284	5387	5491				
03	5594	5697	5801	5904	6007	6111	6214	6317	6420	6524				
04	6627	6730	6834	6937	7040	7144	7247	7350	7453	7557				
05	7660	7763	7867	7970	8073	8176	8280	8383	8486	8589				
06	8693	8796	8899	9002	9106	9209	9312	9415	9519	9622				
07	9725	9828	9932	0035	0138	0241	0344	0448	0551	0654				
08	6240757	0861	0964	1067	1170	1273	1377	1480	1583	1686				
09	1789	1892	1996	2099	2202	2305	2408	2511	2615	2718				
4210	2821	2924	3027	3130	3234	3337	3440	3543	3646	3749				
11	3852	3956	4059	4162	4265	4368	4471	4574	4677	4781			103	10
12	4884	4987	5090	5193	5296	5399	5502	5605	5708	5812			2	21
13	5915	6018	6121	6224	6327	6430	6533	6636	6739	6842			3	31
14	6945	7048	7151	7254	7358	7461	7564	7667	7770	7873			4	41
15	7976	8079	8182	8285	8388	8491	8594	8697	8800	8903			5	52
16	9006	9109	9212	9315	9418	9521	9624	9727	9830	9933			6	62
17	6250036	0139	0242	0345	0448	0551	0654	0757	0860	0963			7	72
18	1066	1169	1272	1375	1478	1581	1683	1786	1889	1992			8	82
19	2095	2198	2301	2404	2507	2610	2713	2816	2919	3022			9	93
4220	3125	3227	3330	3433	3536	3639	3742	3845	3948	4051				
21	4154	4256	4359	4462	4565	4668	4771	4874	4977	5079				
22	5182	5285	5388	5491	5594	5697	5799	5902	6005	6108				
23	6211	6314	6416	6519	6622	6725	6828	6931	7033	7136				
24	7239	7342	7445	7548	7650	7753	7856	7959	8062	8164				
25	8267	8370	8473	8575	8678	8781	8884	8987	9089	9192				
26	9295	9398	9500	9603	9706	9809	9911	0014	0117	0220				
27	6260322	0425	0528	0631	0733	0836	0939	1042	1144	1247				
28	1350	1453	1555	1658	1761	1863	1966	2069	2171	2274				
29	2377	2480	2582	2685	2788	2890	2993	3096	3198	3301				
4230	3404	3506	3609	3712	3814	3917	4020	4122	4225	4328				
31	4430	4533	4636	4738	4841	4943	5046	5149	5251	5354			102	10
32	5457	5559	5662	5764	5867	5970	6072	6175	6277	6380			2	20
33	6483	6585	6688	6790	6893	6996	7098	7201	7303	7406			3	31
34	7509	7611	7714	7816	7919	8021	8124	8226	8329	8432			4	41
35	8534	8637	8739	8842	8944	9047	9149	9252	9354	9457			5	51
36	9560	9662	9765	9867	9970	0072	0175	0277	0380	0482			6	61
37	6270585	0687	0790	0892	0995	1097	1200	1302	1405	1507			7	71
38	1610	1712	1814	1917	2019	2122	2224	2327	2429	2532			8	82
39	2634	2737	2839	2942	3044	3146	3249	3351	3454	3556			9	92
4240	3659	3761	3863	3966	4068	4171	4273	4376	4478	4580				
41	4683	4785	4888	4990	5092	5195	5297	5399	5502	5604				
42	5707	5809	5911	6014	6116	6219	6321	6423	6526	6628				
43	6730	6833	6935	7037	7140	7242	7344	7447	7549	7651				
44	7754	7856	7958	8061	8163	8265	8368	8470	8572	8675				
45	8777	8879	8982	9084	9186	9288	9391	9493	9595	9698				
46	9800	9902	0004	0107	0209	0311	0414	0516	0618	0720				
47	6280823	0925	1027	1129	1232	1334	1436	1538	1641	1743				
48	1845	1947	2050	2152	2254	2356	2458	2561	2663	2765				
49	2867	2970	3072	3174	3276	3378	3481	3583	3685	3787				
N	O	I	2	3	4	5	6	7	8	9	D	Pts		

(72)

LOGARITHMS

N. 425 L. 628

N	0	1	2	3	4	5	6	7	8	9	D	Pro
4250	6283889	3091	4094	4196	4298	4400	4502	4605	4707	4809		
51	4911	5013	5115	5218	5320	5422	5524	5626	5728	5830		
52	5933	6035	6137	6239	6341	6443	6545	6647	6750	6852		
53	6954	7056	7158	7260	7362	7464	7566	7669	7771	7873		
54	7975	8077	8179	8281	8383	8485	8587	8689	8792	8894		
55	8996	9098	9200	9302	9404	9506	9608	9710	9812	9914		
56	6290016	0118	0220	0322	0424	0526	0628	0730	0832	0934	102	
57	1037	1139	1241	1343	1445	1547	1649	1751	1853	1955		
58	2057	2159	2261	2363	2465	2567	2668	2770	2872	2974		
59	3076	3178	3280	3382	3484	3586	3688	3790	3892	3994		
4260	4096	4198	4300	4402	4504	4606	4708	4810	4911	5013		
61	5115	5217	5319	5421	5523	5625	5727	5829	5931	6033	102	
62	6134	6236	6338	6440	6542	6644	6746	6848	6950	7051	1	10
63	7153	7255	7357	7459	7561	7663	7765	7866	7968	8070	2	20
64	8172	8274	8376	8478	8579	8681	8783	8885	8987	9089	3	30
65	9190	9292	9394	9496	9598	9699	9801	9903	0005	0107	4	40
66	6300209	0310	0412	0514	0616	0717	0819	0921	1023	1125	5	50
67	1226	1328	1430	1532	1634	1735	1837	1939	2041	2142	6	60
68	2244	2346	2448	2549	2651	2753	2855	2956	3058	3160	7	70
69	3262	3363	3465	3567	3668	3770	3872	3974	4075	4177	8	80
4270	4279	4380	4482	4584	4686	4787	4889	4991	5092	5194	9	90
71	5296	5397	5499	5601	5702	5804	5906	6007	6109	6211		
72	6312	6414	6516	6617	6719	6821	6922	7024	7126	7227		
73	7329	7431	7532	7634	7735	7837	7939	8040	8142	8244		
74	8345	8447	8548	8650	8752	8853	8955	9056	9158	9260		
75	9361	9463	9564	9666	9768	9869	9971	0072	0174	0275		
76	6310377	0479	0580	0682	0783	0885	0986	1088	1189	1291		
77	1393	1494	1596	1697	1799	1900	2002	2103	2205	2306		
78	2408	2509	2611	2712	2814	2915	3017	3118	3220	3321		
79	3423	3524	3626	3727	3829	3930	4032	4133	4235	4336		
4280	4438	4539	4641	4742	4844	4945	5046	5148	5249	5351		
81	5452	5554	5655	5757	5858	5959	6061	6162	6264	6365	101	
82	6467	6568	6669	6771	6872	6974	7075	7177	7278	7379	1	10
83	7481	7582	7684	7785	7886	7988	8089	8190	8292	8393	2	20
84	8495	8596	8697	8799	8900	9001	9103	9204	9306	9407	3	30
85	9508	9610	9711	9812	9914	0015	0116	0218	0319	0420	4	40
86	6320522	0623	0724	0826	0927	1028	1130	1231	1332	1434	5	50
87	1535	1636	1737	1839	1940	2041	2143	2244	2345	2446	6	60
88	2548	2649	2750	2852	2953	3054	3155	3257	3358	3459	7	70
89	3560	3662	3763	3864	3965	4067	4168	4269	4370	4472	8	80
4290	4573	4674	4775	4877	4978	5079	5180	5282	5383	5484		
91	5585	5686	5788	5889	5990	6091	6192	6294	6395	6496		
92	6597	6698	6800	6901	7002	7103	7204	7305	7407	7508		
93	7609	7710	7811	7912	8014	8115	8216	8317	8418	8519		
94	8620	8722	8823	8924	9025	9126	9227	9328	9429	9531		
95	9632	9733	9834	9935	0036	0137	0238	0339	0441	0542		
96	6330643	0744	0845	0946	1047	1148	1249	1350	1451	1552		
97	1654	1755	1856	1957	2058	2159	2260	2361	2462	2563		
98	2664	2765	2866	2967	3068	3169	3270	3371	3472	3573		
99	3674	3775	3876	3978	4079	4180	4281	4382	4483	4584	101	
N	0	1	2	3	4	5	6	7	8	9	D	Pts

N. 430 L. 633 OF NUMBERS. (73)

N	O	I	2	3	4	5	6	7	8	9	D	Pro
4300	6334685	4786	4887	4988	5089	5190	5291	5391	5492	5593		
01	5694	5795	5896	5997	6098	6199	6300	6401	6502	6603		
02	6704	6805	6906	7007	7108	7209	7310	7411	7512	7613		
03	7713	7814	7915	8016	8117	8218	8319	8420	8521	8622		
04	8723	8824	8924	9025	9126	9227	9328	9429	9530	9631		
05	9732	9832	9933	0034	0135	0236	0337	0438	0539	0639		
06	6340740	0841	0942	1043	1144	1245	1345	1446	1547	1648		
07	1749	1850	1950	2051	2152	2253	2354	2455	2555	2656		
08	2757	2858	2959	3059	3160	3261	3362	3463	3563	3664		
09	3765	3866	3967	4067	4168	4269	4370	4470	4571	4672		
4310	4773	4873	4974	5075	5176	5276	5377	5478	5579	5679		
11	5780	5881	5982	6082	6183	6284	6385	6485	6586	6687		
12	6788	6888	6989	7090	7190	7291	7392	7492	7593	7694		
13	7795	7895	7996	8097	8197	8298	8399	8499	8600	8701		
14	8801	8902	9003	9103	9204	9305	9405	9506	9607	9707		
15	9808	9909	0009	0110	0211	0311	0412	0512	0613	0714		
16	6350814	0915	1016	1116	1217	1317	1418	1519	1619	1720		
17	1820	1921	2022	2122	2223	2323	2424	2525	2625	2726		
18	2826	2927	3028	3128	3229	3329	3430	3530	3631	3731		
19	3832	3933	4033	4134	4234	4335	4435	4536	4636	4737		
4320	4837	4938	5039	5139	5240	5340	5441	5541	5642	5742		
21	5843	5943	6044	6144	6245	6345	6446	6546	6647	6747		
22	6848	6948	7049	7149	7250	7350	7450	7551	7651	7752		
23	7852	7953	8053	8154	8254	8355	8455	8556	8656	8756		
24	8857	8957	9058	9158	9259	9359	9459	9560	9660	9761		
25	9861	9962	0062	0162	0263	0363	0464	0564	0664	0765		
26	6360865	0966	1066	1166	1267	1367	1467	1568	1668	1769		
27	1869	1969	2070	2170	2270	2371	2471	2571	2672	2772		
28	2873	2973	3073	3174	3274	3374	3475	3575	3675	3776		
29	3876	3976	4076	4177	4277	4377	4478	4578	4678	4779		
4330	4879	4979	5080	5180	5280	5380	5481	5581	5681	5782		
31	5882	5982	6082	6183	6283	6383	6483	6584	6684	6784		
32	6884	6985	7085	7185	7285	7386	7486	7586	7686	7787		
33	7887	7987	8087	8188	8288	8388	8488	8588	8689	8789		
34	8889	8989	9089	9190	9290	9390	9490	9590	9691	9791		
35	9891	9991	0091	0192	0292	0392	0492	0592	0692	0793		
36	6370893	0993	1093	1193	1293	1394	1494	1594	1694	1794		
37	1894	1994	2094	2195	2295	2395	2495	2595	2695	2795		
38	2895	2996	3096	3196	3296	3396	3496	3596	3696	3796		
39	3897	3997	4097	4197	4297	4397	4497	4597	4697	4797		
4340	4897	4997	5097	5197	5298	5398	5498	5598	5698	5798		
41	5898	5998	6098	6198	6298	6398	6498	6598	6698	6798		
42	6898	6998	7098	7198	7298	7398	7498	7598	7698	7798		
43	7898	7998	8098	8198	8298	8398	8498	8598	8698	8798		
44	8898	8998	9098	9198	9298	9398	9498	9598	9698	9798		
45	9898	9998	0098	0198	0298	0398	0497	0597	0697	0797		
46	6380897	0997	1097	1197	1297	1397	1497	1597	1697	1796		
47	1896	1996	2096	2196	2296	2396	2496	2596	2696	2795		
48	2895	2995	3095	3195	3295	3395	3495	3594	3694	3794		
49	3894	3994	4094	4194	4294	4393	4493	4593	4693	4793		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

101
1 10
2 20
3 30
4 40
5 50
6 60
7 70
8 80
9 90

100
1 10
2 20
3 30
4 40
5 50
6 60
7 70
8 80
9 90

100

(74)

LOGARITHMS

N. 435 L. 638

N	0	1	2	3	4	5	6	7	8	9	D	Pro
4350	6384893	4992	5092	5192	5292	5392	5492	5591	5691	5791		
51	5891	5991	6090	6190	6290	6390	6490	6589	6689	6789		
52	6889	6989	7088	7188	7288	7388	7488	7587	7687	7787		
53	7887	7986	8086	8186	8286	8385	8485	8585	8685	8784		
54	8884	8984	9084	9183	9283	9383	9483	9582	9682	9782		
55	9882	9981	0081	0181	0280	0380	0480	0580	0679	0779		
56	6390879	0978	1078	1178	1277	1377	1477	1577	1676	1776		
57	1876	1975	2075	2175	2274	2374	2474	2573	2673	2773		
58	2872	2972	3072	3171	3271	3371	3470	3570	3669	3769		
59	3869	3968	4068	4168	4267	4367	4466	4566	4666	4765		
4360	4865	4965	5064	5164	5263	5363	5463	5562	5662	5761		
61	5861	5960	6060	6160	6259	6359	6458	6558	6657	6757		
62	6857	6956	7056	7155	7255	7354	7454	7553	7653	7753		
63	7852	7952	8051	8151	8250	8350	8449	8549	8648	8748		
64	8847	8947	9046	9146	9245	9345	9444	9544	9643	9743		
65	9842	9942	0041	0141	0240	0340	0439	0539	0638	0738		
66	6400837	0937	1036	1136	1235	1335	1434	1534	1633	1732		
67	1832	1931	2031	2130	2230	2329	2429	2528	2627	2727		
68	2826	2926	3025	3125	3224	3323	3423	3522	3622	3721		
69	3820	3920	4019	4119	4218	4317	4417	4516	4616	4715		
4370	4814	4914	5013	5113	5212	5311	5411	5510	5609	5709		
71	5808	5907	6007	6106	6205	6305	6404	6504	6603	6702		
72	6802	6901	7000	7100	7199	7298	7398	7497	7596	7695		
73	7795	7894	7993	8093	8192	8291	8391	8490	8589	8688		
74	8788	8887	8986	9086	9185	9284	9383	9483	9582	9681		
75	9781	9880	9979	0078	0178	0277	0376	0475	0575	0674		
76	6410773	0872	0972	1071	1170	1269	1369	1468	1567	1666		
77	1765	1865	1964	2063	2162	2262	2361	2460	2559	2658		
78	2758	2857	2956	3055	3154	3254	3353	3452	3551	3650		
79	3749	3849	3948	4047	4146	4245	4344	4444	4543	4642		
4380	4741	4840	4939	5039	5138	5237	5336	5435	5534	5633		
81	5733	5832	5931	6030	6129	6228	6327	6426	6526	6625		
82	6724	6823	6922	7021	7120	7219	7318	7417	7517	7616		
83	7715	7814	7913	8012	8111	8210	8309	8408	8507	8606		
84	8705	8805	8904	9003	9102	9201	9300	9399	9498	9597		
85	9696	9795	9894	9993	0092	0191	0290	0389	0488	0587		
86	6420686	0785	0884	0983	1082	1181	1280	1379	1478	1577		
87	1676	1775	1874	1973	2072	2171	2270	2369	2468	2567		
88	2666	2765	2864	2963	3062	3161	3260	3359	3458	3557		
89	3656	3755	3854	3953	4052	4151	4249	4348	4447	4546		
4390	4645	4744	4843	4942	5041	5140	5239	5338	5437	5535		
91	5634	5733	5832	5931	6030	6129	6228	6327	6426	6524		
92	6623	6722	6821	6920	7019	7118	7217	7315	7414	7513		
93	7612	7711	7810	7909	8007	8106	8205	8304	8403	8502		
94	8601	8699	8798	8897	8996	9095	9194	9292	9391	9490		
95	9589	9688	9786	9885	9984	0083	0182	0280	0379	0478		
96	6430577	0676	0774	0873	0972	1071	1170	1268	1367	1466		
97	1565	1663	1762	1861	1960	2058	2157	2256	2355	2454		
98	2552	2651	2750	2848	2947	3046	3145	3243	3342	3441		
99	3540	3638	3737	3836	3935	4033	4132	4231	4329	4428		
N	0	1	2	3	4	5	6	7	8	9	D	Pro

100

1	10
2	20
3	30
4	40
5	50
6	60
7	70
8	80
9	90

99

1	10
2	20
3	30
4	40
5	50
6	60
7	70
8	80
9	90

99

N. 440 L. 643

OF NUMBERS.

(75)

N	0	1	2	3	4	5	6	7	8	9	D	Pro
4400	6434527	4625	4724	4823	4922	5020	5119	5218	5316	5415		
01	5514	5612	5711	5810	5908	6007	6106	6204	6303	6402		
02	6500	6599	6698	6796	6895	6994	7092	7191	7290	7388		
03	7487	7585	7684	7783	7881	7980	8079	8177	8276	8374		
04	8473	8572	8670	8769	8868	8966	9065	9163	9262	9361		
05	9459	9558	9656	9755	9853	9952	0051	0149	0248	0346		
06	6440445	0543	0642	0741	0839	0938	1036	1135	1233	1332		
07	1431	1529	1628	1726	1825	1923	2022	2120	2219	2317		
08	2416	2514	2613	2711	2810	2908	3007	3105	3204	3302		
09	3401	3499	3598	3696	3795	3893	3992	4090	4189	4287		
4410	4386	4484	4583	4681	4780	4878	4977	5075	5174	5272		
11	5371	5469	5567	5666	5764	5863	5961	6060	6158	6257		
12	6355	6453	6552	6650	6749	6847	6946	7044	7142	7241		
13	7339	7438	7536	7635	7733	7831	7930	8028	8127	8225		
14	8323	8422	8520	8618	8717	8815	8914	9012	9110	9209		
15	9307	9405	9504	9602	9701	9799	9897	9996	0094	0192		
16	6450291	0389	0487	0586	0684	0782	0881	0979	1077	1176		
17	1274	1372	1471	1569	1667	1766	1864	1962	2061	2159		
18	2257	2355	2454	2552	2650	2749	2847	2945	3043	3142		
19	3240	3338	3437	3535	3633	3731	3830	3928	4026	4124		
4420	4223	4321	4419	4517	4616	4714	4812	4910	5009	5107		
21	5205	5303	5402	5500	5598	5696	5795	5893	5991	6089		
22	6187	6286	6384	6482	6580	6678	6777	6875	6973	7071		
23	7169	7268	7366	7464	7562	7660	7758	7857	7955	8053		
24	8151	8249	8348	8446	8544	8642	8740	8838	8936	9035		
25	9133	9231	9329	9427	9525	9623	9722	9820	9918	0016		
26	6460114	0212	0310	0408	0507	0605	0703	0801	0899	0997		
27	1095	1193	1291	1390	1488	1586	1684	1782	1880	1978		
28	2076	2174	2272	2370	2468	2566	2665	2763	2861	2959		
29	3057	3155	3253	3351	3449	3547	3645	3743	3841	3939		
4430	4037	4135	4233	4331	4429	4527	4625	4723	4821	4919		
31	5018	5116	5214	5312	5410	5508	5606	5704	5802	5900		
32	5998	6096	6193	6291	6389	6487	6585	6683	6781	6879		
33	6977	7075	7173	7271	7369	7467	7565	7663	7761	7859		
34	7957	8055	8153	8251	8349	8447	8545	8642	8740	8838		
35	8936	9034	9132	9230	9328	9426	9524	9622	9720	9817		
36	9915	0013	0111	0209	0307	0405	0503	0601	0699	0796		
37	6470894	0992	1090	1188	1286	1384	1482	1579	1677	1775		
38	1873	1971	2069	2167	2264	2362	2460	2558	2656	2754		
39	2851	2949	3047	3145	3243	3341	3438	3536	3634	3732		
4440	3830	3928	4025	4123	4221	4319	4417	4514	4612	4710		
41	4808	4906	5003	5101	5199	5297	5394	5492	5590	5688		
42	5786	5883	5981	6079	6177	6274	6372	6470	6568	6665		
43	6763	6861	6959	7056	7154	7252	7350	7447	7545	7643		
44	7741	7838	7936	8034	8131	8229	8327	8425	8522	8620		
45	8718	8815	8913	9011	9108	9206	9304	9402	9499	9597		
46	9695	9792	9890	9988	0085	0183	0281	0378	0476	0574		
47	6480671	0769	0867	0964	1062	1160	1257	1355	1453	1550		
48	1648	1745	1843	1941	2038	2136	2234	2331	2429	2526		
49	2624	2722	2819	2917	3015	3112	3210	3307	3405	3503		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

98

1	10
2	20
3	29
4	39
5	49
6	59
7	69
8	78
9	88

98

97

1	10
2	19
3	29
4	39
5	49
6	58
7	68
8	78
9	87

(76)

LOGARITHMS

N. 445 L. 648

N	O	I	2	3	4	5	6	7	8	9	D	Pro
4450	6483600	3698	3795	3893	3990	4088	4186	4283	4381	4478		
51	4576	4674	4771	4869	4966	5064	5161	5259	5356	5454		
52	5552	5649	5747	5844	5942	6039	6137	6234	6332	6429		
53	6527	6624	6722	6820	6917	7015	7112	7210	7307	7405		
54	7502	7600	7697	7795	7892	7990	8087	8185	8282	8380		
55	8477	8575	8672	8770	8867	8964	9062	9159	9257	9354		
56	9452	9549	9647	9744	9842	9939	0037	0134	0231	0329		
57	6490426	0524	0621	0719	0816	0914	1011	1108	1206	1303		
58	1401	1498	1595	1693	1790	1888	1985	2083	2180	2277		
59	2375	2472	2570	2667	2764	2862	2959	3056	3154	3251		
4460	3349	3446	3543	3641	3738	3835	3933	4030	4128	4225		
61	4322	4420	4517	4614	4712	4809	4906	5004	5101	5198		
62	5296	5393	5490	5588	5685	5782	5880	5977	6074	6172		
63	6269	6366	6463	6561	6658	6755	6853	6950	7047	7145		
64	7242	7339	7436	7534	7631	7728	7826	7923	8020	8117		
65	8215	8312	8409	8506	8604	8701	8798	8895	8993	9090		
66	9187	9284	9382	9479	9576	9673	9771	9868	9965	0062		
67	6500160	0257	0354	0451	0548	0646	0743	0840	0937	1034		
68	1132	1229	1326	1423	1520	1618	1715	1812	1909	2006		
69	2104	2201	2298	2395	2492	2589	2687	2784	2881	2978		
4470	3075	3172	3270	3367	3464	3561	3658	3755	3852	3950		
71	4047	4144	4241	4338	4435	4532	4629	4727	4824	4921		
72	5018	5115	5212	5309	5406	5503	5601	5698	5795	5892		
73	5989	6086	6183	6280	6377	6474	6571	6669	6766	6863		
74	6960	7057	7154	7251	7348	7445	7542	7639	7736	7833		
75	7930	8027	8124	8222	8319	8416	8513	8610	8707	8804		
76	8901	8998	9095	9192	9289	9386	9483	9580	9677	9774		
77	9871	9968	0065	0162	0259	0356	0453	0550	0647	0744		
78	6510841	0938	1035	1132	1229	1326	1423	1520	1617	1714		
79	1811	1908	2005	2102	2198	2295	2392	2489	2586	2683		
4480	2780	2877	2974	3071	3168	3265	3362	3459	3556	3653		
81	3749	3846	3943	4040	4137	4234	4331	4428	4525	4622		
82	4719	4815	4912	5009	5106	5203	5300	5397	5494	5591		
83	5687	5784	5881	5978	6075	6172	6269	6365	6462	6559		
84	6656	6753	6850	6947	7043	7140	7237	7334	7431	7528		
85	7624	7721	7818	7915	8012	8109	8205	8302	8399	8496		
86	8593	8690	8786	8883	8980	9077	9174	9270	9367	9464		
87	9561	9657	9754	9851	9948	0045	0141	0238	0335	0432		
88	6520528	0625	0722	0819	0916	1012	1109	1206	1303	1399		
89	1496	1593	1690	1786	1883	1980	2076	2173	2270	2367		
4490	2463	2560	2657	2754	2850	2947	3044	3140	3237	3334		
91	3431	3527	3624	3721	3817	3914	4011	4107	4204	4301		
92	4397	4494	4591	4688	4784	4881	4978	5074	5171	5268		
93	5364	5461	5558	5654	5751	5847	5944	6041	6137	6234		
94	6331	6427	6524	6621	6717	6814	6910	7007	7104	7200		
95	7297	7394	7490	7587	7683	7780	7877	7973	8070	8166		
96	8263	8360	8456	8553	8649	8746	8843	8939	9036	9132		
97	9229	9325	9422	9519	9615	9712	9808	9905	0001	0098		
98	6530195	0291	0388	0484	0581	0677	0774	0870	0967	1063		
99	1160	1256	1353	1450	1546	1643	1739	1836	1932	2029		
N	O	I	2	3	4	5	6	7	8	9	D	Pro

97

1	10
2	19
3	29
4	39
5	49
6	58
7	68
8	78
9	87

96

1	10
2	19
3	29
4	38
5	48
6	58
7	67
8	77
9	86

N	O	I	2	3	4	5	6	7	8	9	D	Pro
4500	6532125	2222	2318	2415	2511	2608	2704	2801	2897	2994		
01	3090	3187	3283	3380	3476	3573	3669	3765	3862	3958		
02	4055	4151	4248	4344	4441	4537	4634	4730	4827	4923		
03	5019	5116	5212	5309	5405	5502	5598	5695	5791	5887		
04	5984	6080	6177	6273	6359	6466	6562	6659	6755	6852		
05	6948	7044	7141	7237	7334	7430	7526	7623	7719	7815		
06	7912	8008	8105	8201	8297	8394	8490	8586	8683	8779		
07	8876	8972	9068	9165	9261	9357	9454	9550	9646	9743		
08	9839	9935	0032	0128	0224	0321	0417	0513	0610	0706		
09	6540802	0899	0995	1091	1188	1284	1380	1477	1573	1669		
4510	1765	1862	1958	2054	2151	2247	2343	2439	2536	2632		
11	2728	2825	2921	3017	3113	3210	3306	3402	3498	3595		
12	3691	3787	3883	3980	4076	4172	4268	4365	4461	4557		
13	4653	4750	4846	4942	5038	5134	5231	5327	5423	5519		
14	5616	5712	5808	5904	6000	6097	6193	6289	6385	6481		
15	6578	6674	6770	6866	6962	7058	7155	7251	7347	7443		
16	7539	7635	7732	7828	7924	8020	8116	8212	8309	8405		
17	8501	8597	8693	8789	8885	8982	9078	9174	9270	9366		
18	9462	9558	9655	9751	9847	9943	0039	0135	0231	0327		
19	6550423	0520	0616	0712	0808	0904	1000	1096	1192	1288		
4520	1384	1480	1577	1673	1769	1865	1961	2057	2153	2249		
21	2345	2441	2537	2633	2729	2825	2921	3017	3113	3210		
22	3306	3402	3498	3594	3690	3786	3882	3978	4074	4170		
23	4266	4362	4458	4554	4650	4746	4842	4938	5034	5130		
24	5226	5322	5418	5514	5610	5706	5802	5898	5994	6090		
25	6186	6282	6378	6474	6570	6666	6762	6858	6954	7050		
26	7145	7241	7337	7433	7529	7625	7721	7817	7913	8009		
27	8105	8201	8297	8393	8489	8585	8681	8776	8872	8968		
28	9064	9160	9256	9352	9448	9544	9640	9736	9831	9927		
29	6560023	0119	0215	0311	0407	0503	0599	0694	0790	0886		
4530	0982	1078	1174	1270	1365	1461	1557	1653	1749	1845		
31	1941	2036	2132	2228	2324	2420	2516	2612	2707	2803		
32	2899	2995	3091	3186	3282	3378	3474	3570	3666	3761		
33	3857	3953	4049	4145	4240	4336	4432	4528	4624	4719		
34	4815	4911	5007	5103	5198	5294	5390	5486	5581	5677		
35	5773	5869	5964	6060	6156	6252	6347	6443	6539	6635		
36	6730	6826	6922	7018	7113	7209	7305	7401	7496	7592		
37	7688	7784	7879	7975	8071	8166	8262	8358	8454	8549		
38	8645	8741	8836	8932	9028	9123	9219	9315	9410	9506		
39	9602	9698	9793	9889	9985	0080	0176	0272	0367	0463		
4540	6570559	0654	0750	0845	0941	1037	1132	1228	1324	1419		
41	1515	1611	1706	1802	1898	1993	2089	2184	2280	2376		
42	2471	2567	2663	2758	2854	2949	3045	3141	3236	3332		
43	3427	3523	3619	3714	3810	3905	4001	4096	4192	4288		
44	4383	4479	4574	4670	4766	4861	4957	5052	5148	5243		
45	5339	5434	5530	5626	5721	5817	5912	6008	6103	6199		
46	6294	6390	6485	6581	6676	6772	6867	6963	7059	7154		
47	7250	7345	7441	7536	7632	7727	7823	7918	8014	8109		
48	8205	8300	8396	8491	8587	8682	8777	8873	8968	9064		
49	9159	9255	9350	9446	9541	9637	9732	9828	9923	0019		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

96

1	10
2	19
3	29
4	38
5	48
6	58
7	67
8	77
9	86

96

95

1	10
2	19
3	29
4	38
5	48
6	57
7	67
8	76
9	86

(78.)

LOGARITHMS

N. 455 L. 658

N	0	1	2	3	4	5	6	7	8	9	D	Pro
4550	6580114	0209	0305	0400	0496	0591	0687	0782	0877	0973		
51	1068	1164	1259	1355	1450	1545	1641	1736	1832	1927		
52	2023	2118	2213	2309	2404	2500	2595	2690	2786	2881		
53	2977	3072	3167	3263	3358	3453	3549	3644	3740	3835		
54	3930	4026	4121	4216	4312	4407	4502	4598	4693	4788		
55	4884	4979	5074	5170	5265	5361	5456	5551	5647	5742		
56	5837	5932	6028	6123	6218	6314	6409	6504	6600	6695		
57	6790	6886	6981	7076	7171	7267	7362	7457	7553	7648		
58	7743	7838	7934	8029	8124	8220	8315	8410	8505	8601		
59	8696	8791	8886	8982	9077	9172	9267	9363	9458	9553		
4560	9648	9744	9839	9934	0029	0125	0220	0315	0410	0506		
61	6590601	0696	0791	0886	0982	1077	1172	1267	1362	1458		
62	1553	1648	1743	1838	1934	2029	2124	2219	2314	2410		
63	2505	2600	2695	2790	2885	2981	3076	3171	3266	3361		
64	3456	3552	3647	3742	3837	3932	4027	4122	4218	4313		
65	4408	4503	4598	4693	4788	4883	4979	5074	5169	5264		
66	5359	5454	5549	5644	5740	5835	5930	6025	6120	6215		
67	6310	6405	6500	6595	6690	6786	6881	6976	7071	7166		
68	7261	7356	7451	7546	7641	7736	7831	7926	8021	8117		
69	8212	8307	8402	8497	8592	8687	8782	8877	8972	9067		
4570	9162	9257	9352	9447	9542	9637	9732	9827	9922	0017		
71	6600112	0207	0302	0397	0492	0587	0682	0777	0872	0967		
72	1062	1157	1252	1347	1442	1537	1632	1727	1822	1917		
73	2012	2107	2202	2297	2392	2487	2582	2677	2772	2867		
74	2962	3057	3151	3246	3341	3436	3531	3626	3721	3816		
75	3911	4006	4101	4196	4291	4386	4481	4575	4670	4765		
76	4860	4955	5050	5145	5240	5335	5430	5524	5619	5714		
77	5809	5904	5999	6094	6189	6284	6378	6473	6568	6663		
78	6758	6853	6948	7042	7137	7232	7327	7422	7517	7612		
79	7706	7801	7896	7991	8086	8181	8275	8370	8465	8560		
4580	8655	8750	8844	8939	9034	9129	9224	9318	9413	9508		
81	9603	9698	9793	9887	9982	0077	0172	0266	0361	0456		
82	6610551	0646	0740	0835	0930	1025	1120	1214	1309	1404		
83	1499	1593	1688	1783	1878	1972	2067	2162	2257	2351		
84	2446	2541	2636	2730	2825	2920	3015	3109	3204	3299		
85	3393	3488	3583	3678	3772	3867	3962	4056	4151	4246		
86	4341	4435	4530	4625	4719	4814	4909	5003	5098	5193		
87	5287	5382	5477	5571	5666	5761	5855	5950	6045	6139		
88	6234	6329	6423	6518	6613	6707	6802	6897	6991	7086		
89	7181	7275	7370	7464	7559	7654	7748	7843	7938	8032		
4590	8127	8221	8316	8411	8505	8600	8695	8789	8884	8978		
91	9073	9168	9262	9357	9451	9546	9640	9735	9830	9924		
92	6620019	0113	0208	0303	0397	0492	0586	0681	0775	0870		
93	0964	1059	1154	1248	1343	1437	1532	1626	1721	1815		
94	1910	2004	2099	2194	2288	2383	2477	2572	2666	2761		
95	2855	2950	3044	3139	3233	3328	3422	3517	3611	3706		
96	3800	3895	3989	4084	4178	4273	4367	4462	4556	4651		
97	4745	4840	4934	5028	5123	5217	5312	5406	5501	5595		
98	5690	5784	5879	5973	6067	6162	6256	6351	6445	6540		
99	6634	6729	6823	6917	7012	7106	7201	7295	7389	7484		
N	0	1	2	3	4	5	6	7	8	9	D	Pro

95

1	10
2	19
3	29
4	38
5	48
6	57
7	67
8	76
9	86

95

94

1	9
2	19
3	28
4	38
5	47
6	56
7	66
8	75
9	85

N	O	1	2	3	4	5	6	7	8	9	D	Pts
4600	6627578	7673	7767	7862	7956	8050	8145	8239	8334	8428		
01	8522	8617	8711	8805	8900	8994	9089	9183	9277	9372		
02	9466	9561	9655	9749	9844	9938	0032	0127	0221	0315		
03	6630410	0504	0598	0693	0787	0881	0976	1070	1164	1259		
04	1353	1447	1542	1636	1730	1825	1919	2013	2108	2202		
05	2296	2391	2485	2579	2674	2768	2862	2956	3051	3145		
06	3239	3334	3428	3522	3616	3711	3805	3899	3994	4088		
07	4182	4276	4371	4465	4559	4653	4748	4842	4936	5030		
08	5125	5219	5313	5407	5502	5596	5690	5784	5879	5973		
09	6067	6161	6256	6350	6444	6538	6632	6727	6821	6915		
4610	7009	7103	7198	7292	7386	7480	7574	7669	7763	7857		
11	7951	8045	8140	8234	8328	8422	8516	8610	8705	8799		
12	8893	8987	9081	9175	9270	9364	9458	9552	9646	9740		
13	9835	9929	0023	0117	0211	0305	0399	0494	0588	0682		
14	6640776	0870	0964	1058	1152	1247	1341	1435	1529	1623		
15	1717	1811	1905	1999	2093	2188	2282	2376	2470	2564		
16	2658	2752	2846	2940	3034	3128	3222	3317	3411	3505		
17	3599	3693	3787	3881	3975	4069	4163	4257	4351	4445		
18	4539	4633	4727	4821	4915	5009	5104	5198	5292	5386		
19	5480	5574	5668	5762	5856	5950	6044	6138	6232	6326		
4620	6420	6514	6608	6702	6796	6890	6984	7078	7172	7266		
21	7360	7454	7548	7642	7736	7830	7924	8018	8111	8205		
22	8299	8393	8487	8581	8675	8769	8863	8957	9051	9145		
23	9239	9333	9427	9521	9615	9709	9803	9896	9990	0084		
24	6650178	0272	0366	0460	0554	0648	0742	0836	0930	1023		
25	1117	1211	1305	1399	1493	1587	1681	1775	1869	1962		
26	2056	2150	2244	2338	2432	2526	2620	2713	2807	2901		
27	2995	3089	3183	3277	3370	3464	3558	3652	3746	3840		
28	3934	4027	4121	4215	4309	4403	4497	4590	4684	4778		
29	4872	4966	5059	5153	5247	5341	5435	5529	5622	5716		
4630	5810	5904	5998	6091	6185	6279	6373	6466	6560	6654		
31	6748	6842	6935	7029	7123	7217	7310	7404	7498	7592		
32	7686	7779	7873	7967	8061	8154	8248	8342	8436	8529		
33	8623	8717	8810	8904	8998	9092	9185	9279	9373	9467		
34	9560	9654	9748	9841	9935	0029	0123	0216	0310	0404		
35	6660497	0591	0685	0778	0872	0966	1060	1153	1247	1341		
36	1434	1528	1622	1715	1809	1903	1996	2090	2184	2277		
37	2371	2465	2558	2652	2746	2839	2933	3027	3120	3214		
38	3307	3401	3495	3588	3682	3776	3869	3963	4056	4150		
39	4244	4337	4431	4525	4618	4712	4805	4899	4993	5086		
4640	5180	5273	5367	5461	5554	5648	5741	5835	5929	6022		
41	6116	6209	6303	6396	6490	6584	6677	6771	6864	6958		
42	7051	7145	7238	7332	7426	7519	7613	7706	7800	7893		
43	7987	8080	8174	8267	8361	8454	8548	8642	8735	8829		
44	8922	9016	9109	9203	9296	9390	9483	9577	9670	9764		
45	9857	9951	0044	0138	0231	0325	0418	0512	0605	0699		
46	6670792	0886	0979	1072	1166	1259	1353	1446	1540	1633		
47	1727	1820	1914	2007	2101	2194	2287	2381	2474	2568		
48	2661	2755	2848	2941	3035	3128	3222	3315	3409	3502		
49	3595	3689	3782	3876	3969	4063	4156	4249	4343	4436		
N	O	1	2	3	4	5	6	7	8	9	D	Pts

94

1	9
2	19
3	28
4	38
5	47
6	56
7	66
8	75
9	85

94

93

1	9
2	19
3	28
4	37
5	47
6	56
7	65
8	74
9	82

(80)

LOGARITHMS

N. 465 L. 667

N	0	1	2	3	4	5	6	7	8	9	D	Pro
4650	6674530	4623	4716	4810	4903	4996	5090	5183	5277	5370		
51	5463	5557	5650	5744	5837	5930	6024	6117	6210	6304		
52	6397	6490	6584	6677	6770	6864	6957	7051	7144	7237		
53	7331	7424	7517	7611	7704	7797	7891	7984	8077	8170		
54	8264	8357	8450	8544	8637	8730	8824	8917	9010	9104		
55	9197	9290	9383	9477	9570	9663	9757	9850	9943	0036		
56	6680130	0223	0316	0410	0503	0596	0689	0783	0876	0969		
57	1062	1156	1249	1342	1435	1529	1622	1715	1808	1902		
58	1995	2088	2181	2275	2368	2461	2554	2647	2741	2834		
59	2927	3020	3114	3207	3300	3393	3486	3580	3673	3766		
4660	3859	3952	4046	4139	4232	4325	4418	4511	4605	4698		
61	4791	4884	4977	5071	5164	5257	5350	5443	5536	5630		
62	5723	5816	5909	6002	6095	6188	6282	6375	6468	6561		
63	6654	6747	6840	6934	7027	7120	7213	7306	7399	7492		
64	7585	7679	7772	7865	7958	8051	8144	8237	8330	8423		
65	8516	8610	8703	8796	8889	8982	9075	9168	9261	9354		
66	9447	9540	9633	9727	9820	9913	0006	0099	0192	0285		
67	6690378	0471	0564	0657	0750	0843	0936	1029	1122	1215		
68	1308	1402	1495	1588	1681	1774	1867	1960	2053	2146		
69	2239	2332	2425	2518	2611	2704	2797	2890	2983	3076	93	
4670	3169	3262	3355	3448	3541	3634	3727	3820	3913	4006		
71	4099	4192	4285	4378	4471	4564	4656	4749	4842	4935		
72	5028	5121	5214	5307	5400	5493	5586	5679	5772	5865		
73	5958	6051	6144	6237	6330	6422	6515	6608	6701	6794		
74	6887	6980	7073	7166	7259	7352	7445	7537	7630	7723		
75	7816	7909	8002	8095	8188	8281	8373	8466	8559	8652		
76	8745	8838	8931	9024	9117	9209	9302	9395	9488	9581		
77	9674	9767	9859	9952	0045	0138	0231	0324	0416	0509		
78	6700602	0695	0788	0881	0974	1066	1159	1252	1345	1438		
79	1530	1623	1716	1809	1902	1995	2087	2180	2273	2366		
4680	2459	2551	2644	2737	2830	2922	3015	3108	3201	3294		
81	3386	3479	3572	3665	3758	3850	3943	4036	4129	4221		
82	4314	4407	4500	4592	4685	4778	4871	4963	5056	5149		
83	5242	5334	5427	5520	5613	5705	5798	5891	5983	6076		
84	6169	6262	6354	6447	6540	6632	6725	6818	6911	7003		
85	7096	7189	7281	7374	7467	7559	7652	7745	7837	7930		
86	8023	8116	8208	8301	8394	8486	8579	8672	8764	8857		
87	8950	9042	9135	9228	9320	9413	9505	9598	9691	9783		
88	9876	9969	0061	0154	0247	0339	0432	0524	0617	0710		
89	6710802	0895	0988	1080	1173	1265	1358	1451	1543	1636		
4690	1728	1821	1914	2006	2099	2191	2284	2377	2469	2562		
91	2654	2747	2839	2932	3025	3117	3210	3302	3395	3487		
92	3580	3673	3765	3858	3950	4043	4135	4228	4320	4413		
93	4506	4598	4691	4783	4876	4968	5061	5153	5246	5338		
94	5431	5523	5616	5708	5801	5893	5986	6078	6171	6263		
95	6356	6448	6541	6633	6726	6818	6911	7003	7096	7188		
96	7281	7373	7466	7558	7651	7743	7836	7928	8021	8113		
97	8206	8298	8391	8483	8575	8668	8760	8853	8945	9038		
98	9130	9223	9315	9407	9500	9592	9685	9777	9870	9962		
99	6720054	0147	0239	0332	0424	0517	0609	0701	0794	0886		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

93

1	9
2	18
3	28
4	37
5	47
6	56
7	65
8	74
9	83

93

92

1	9
2	18
3	28
4	37
5	46
6	55
7	64
8	74
9	83

N	O	I	2	3	4	5	6	7	8	9	D	Pro
4700	6720979	1071	1163	1256	1348	1441	1533	1625	1718	1810		
01	1903	1995	2087	2180	2272	2364	2457	2549	2642	2734		
02	2826	2919	3011	3103	3196	3288	3380	3473	3565	3657		
03	3750	3842	3934	4027	4119	4211	4304	4396	4488	4581		
04	4673	4765	4858	4950	5042	5135	5227	5319	5412	5504		
05	5596	5689	5781	5873	5965	6058	6150	6242	6335	6427		
06	6519	6612	6704	6796	6888	6981	7073	7165	7257	7350		
07	7442	7534	7627	7719	7811	7903	7996	8088	8180	8272		
08	8365	8457	8549	8641	8734	8826	8918	9010	9102	9195		
09	9287	9379	9471	9564	9656	9748	9840	9932	0025	0117		
4710	6730209	0301	0393	0486	0578	0670	0762	0854	0947	1039		
11	1131	1223	1315	1408	1500	1592	1684	1776	1868	1961		
12	2053	2145	2237	2329	2421	2514	2606	2698	2790	2882		
13	2974	3067	3159	3251	3343	3435	3527	3619	3712	3804		
14	3896	3988	4080	4172	4264	4356	4449	4541	4633	4725		
15	4817	4909	5001	5093	5185	5277	5370	5462	5554	5646		
16	5738	5830	5922	6014	6106	6198	6290	6383	6475	6567		
17	6659	6751	6843	6935	7027	7119	7211	7303	7395	7487		
18	7579	7671	7763	7856	7948	8040	8132	8224	8316	8408		
19	8500	8592	8684	8776	8868	8960	9052	9144	9236	9328		
4720	9420	9512	9604	9696	9788	9880	9972	0064	0156	0248		
21	6740340	0432	0524	0616	0708	0800	0892	0984	1076	1168		
22	1260	1352	1444	1536	1628	1720	1812	1904	1996	2088		
23	2179	2271	2363	2455	2547	2639	2731	2823	2915	3007		
24	3087	3179	3283	3375	3467	3559	3650	3742	3834	3926		
25	4018	4110	4202	4294	4386	4478	4570	4661	4753	4845		
26	4937	5029	5121	5213	5305	5397	5489	5580	5672	5764		
27	5856	5948	6040	6132	6224	6315	6407	6499	6591	6683		
28	6775	6867	6958	7050	7142	7234	7326	7418	7509	7601		
29	7693	7785	7877	7969	8060	8152	8244	8336	8428	8520		
4730	8611	8703	8795	8887	8979	9070	9162	9254	9346	9438		
31	9529	9621	9713	9805	9897	9988	0080	0172	0264	0356		
32	6750447	0539	0631	0723	0814	0906	0998	1090	1182	1273		
33	1365	1457	1549	1640	1732	1824	1916	2007	2099	2191		
34	2283	2374	2466	2558	2649	2741	2833	2925	3016	3108		
35	3200	3292	3383	3475	3567	3658	3750	3842	3934	4025		
36	4117	4209	4300	4392	4484	4575	4667	4759	4850	4942		
37	5034	5126	5217	5309	5401	5492	5584	5676	5767	5859		
38	5951	6042	6134	6226	6317	6409	6501	6592	6684	6775		
39	6867	6959	7050	7142	7234	7325	7417	7509	7600	7692		
4740	7783	7875	7967	8058	8150	8242	8333	8425	8516	8608		
41	8700	8791	8883	8974	9066	9158	9249	9341	9432	9524		
42	9615	9707	9799	9890	9982	0073	0165	0257	0348	0440		
43	6760531	0623	0714	0806	0897	0989	1081	1172	1264	1355		
44	1447	1538	1630	1721	1813	1905	1996	2088	2179	2271		
45	2362	2454	2545	2637	2728	2820	2911	3003	3094	3186		
46	3277	3369	3460	3552	3643	3735	3826	3918	4009	4101		
47	4192	4284	4375	4467	4558	4650	4741	4833	4924	5016		
48	5107	5199	5290	5382	5473	5564	5656	5747	5839	5930		
49	6022	6113	6205	6296	6387	6479	6570	6662	6753	6845		
N	O	I	2	3	4	5	6	7	8	9	D	Pro

92
 1 9
 2 18
 3 28
 4 37
 5 46
 6 55
 7 64
 8 74
 9 83

92

91
 1 9
 2 18
 3 27
 4 36
 5 46
 6 55
 7 64
 8 73
 9 82

(82)

LOGARITHMS

N. 475 L. 676

N	0	1	2	3	4	5	6	7	8	9	D	Pro
4750	6766936	7028	7119	7210	7302	7393	7485	7576	7667	7759		
51	7850	7942	8033	8125	8216	8307	8399	8490	8582	8673		
52	8764	8856	8947	9038	9130	9221	9313	9404	9495	9587		
53	9678	9770	9861	9952	0044	0135	0226	0318	0409	0500		
54	6770592	0683	0774	0866	0957	1049	1140	1231	1323	1414		
55	1505	1597	1688	1779	1871	1962	2053	2145	2236	2327		
56	2418	2510	2601	2692	2784	2875	2966	3058	3149	3240		
57	3332	3423	3514	3605	3697	3788	3879	3971	4062	4153		
58	4244	4336	4427	4518	4609	4701	4792	4883	4975	5066		
59	5157	5248	5340	5431	5522	5613	5705	5796	5887	5978		
4760	6070	6161	6252	6343	6434	6526	6617	6708	6799	6891		
61	6982	7073	7164	7255	7347	7438	7529	7620	7712	7803		
62	7894	7985	8076	8168	8259	8350	8441	8532	8623	8715		
63	8806	8897	8988	9079	9171	9262	9353	9444	9535	9626		
64	9718	9809	9900	9991	0082	0173	0264	0356	0447	0538		
65	6780629	0720	0811	0902	0994	1085	1176	1267	1358	1449		
66	1540	1632	1723	1814	1905	1996	2087	2178	2269	2360		
67	2452	2543	2634	2725	2816	2907	2998	3089	3180	3271		
68	3362	3454	3545	3636	3727	3818	3909	4000	4091	4182		
69	4273	4364	4455	4546	4637	4729	4820	4911	5002	5093		
4770	5184	5275	5366	5457	5548	5639	5730	5821	5912	6003		
71	6094	6185	6276	6367	6458	6549	6640	6731	6822	6913		
72	7004	7095	7186	7277	7368	7459	7550	7641	7732	7823		
73	7914	8005	8096	8187	8278	8369	8460	8551	8642	8733		
74	8824	8915	9006	9097	9188	9279	9370	9461	9552	9643		
75	9734	9825	9916	0007	0098	0188	0279	0370	0461	0552		
76	6790643	0734	0825	0916	1007	1098	1189	1280	1371	1461		
77	1552	1643	1734	1825	1916	2007	2098	2189	2280	2371		
78	2461	2552	2643	2734	2825	2916	3007	3098	3189	3279		
79	3370	3461	3552	3643	3734	3825	3916	4006	4097	4188		
4780	4279	4370	4461	4552	4642	4733	4824	4915	5006	5097		
81	5187	5278	5369	5460	5551	5642	5732	5823	5914	6005		
82	6096	6187	6277	6368	6459	6550	6641	6731	6822	6913		
83	7004	7095	7185	7276	7367	7458	7549	7639	7730	7821		
84	7912	8002	8093	8184	8275	8366	8456	8547	8638	8729		
85	8819	8910	9001	9092	9182	9273	9364	9455	9545	9636		
86	9727	9818	9908	9999	0090	0181	0271	0362	0453	0544		
87	6800634	0725	0816	0906	0997	1088	1179	1269	1360	1451		
88	1541	1632	1723	1814	1904	1995	2086	2176	2267	2358		
89	2448	2539	2630	2720	2811	2902	2992	3083	3174	3264		
4790	3355	3446	3536	3627	3718	3808	3899	3990	4080	4171		
91	4262	4352	4443	4534	4624	4715	4806	4896	4987	5077		
92	5168	5259	5349	5440	5531	5621	5712	5802	5893	5984		
93	6074	6165	6256	6346	6437	6527	6618	6709	6799	6890		
94	6980	7071	7161	7252	7343	7433	7524	7614	7705	7796		
95	7886	7977	8067	8158	8248	8339	8430	8520	8611	8701		
96	8792	8882	8973	9063	9154	9244	9335	9426	9516	9607		
97	9697	9788	9878	9969	0059	0150	0240	0331	0421	0512		
98	6810602	0693	0783	0874	0964	1055	1145	1236	1327	1417		
99	1507	1598	1688	1779	1869	1960	2050	2141	2231	2322		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

92

1	9
2	18
3	28
4	37
5	46
6	55
7	64
8	74
9	83

91

91

1	9
2	18
3	27
4	36
5	46
6	55
7	64
8	73
9	82

N. 480 L. 681

OF NUMBERS.

(83)

N	0	1	2	3	4	5	6	7	8	9	D	Pro
4800	6812412	2503	2593	2684	2774	2865	2955	3046	3136	3227		
01	3317	3408	3498	3588	3679	3769	3860	3950	4041	4131		
02	4222	4312	4402	4493	4583	4674	4764	4855	4945	5035		
03	5126	5216	5307	5397	5488	5578	5668	5759	5849	5940		
04	6030	6120	6211	6301	6392	6482	6572	6663	6753	6844		
05	6934	7024	7115	7205	7295	7386	7476	7567	7657	7747		
06	7838	7928	8018	8109	8199	8289	8380	8470	8561	8651		
07	8741	8832	8922	9012	9103	9193	9283	9374	9464	9554		
08	9645	9735	9825	9916	0006	0096	0187	0277	0367	0457		
09	6820548	0638	0728	0819	0909	0999	1090	1180	1270	1360		
4810	1451	1541	1631	1722	1812	1902	1992	2083	2173	2263		
11	2354	2444	2534	2624	2715	2805	2895	2985	3076	3166		
12	3256	3346	3437	3527	3617	3707	3798	3888	3978	4068		
13	4159	4249	4339	4429	4520	4610	4700	4790	4880	4971		
14	5061	5151	5241	5331	5422	5512	5602	5692	5783	5873		
15	5963	6053	6143	6233	6324	6414	6504	6594	6684	6775		
16	6865	6955	7045	7135	7225	7316	7406	7496	7586	7676		
17	7766	7857	7947	8037	8127	8217	8307	8398	8488	8578		
18	8668	8758	8848	8938	9029	9119	9209	9299	9389	9479		
19	9569	9659	9750	9840	9930	0020	0110	0200	0290	0380		
4820	6830470	0560	0651	0741	0831	0921	1011	1101	1191	1281		
21	1371	1461	1551	1642	1732	1822	1912	2002	2092	2182		
22	2272	2362	2452	2542	2632	2722	2812	2902	2993	3083		
23	3173	3263	3353	3443	3533	3623	3713	3803	3893	3983		
24	4073	4163	4253	4343	4433	4523	4613	4703	4793	4883		
25	4973	5063	5153	5243	5333	5423	5513	5603	5693	5783		
26	5873	5963	6053	6143	6233	6323	6413	6503	6593	6683		
27	6773	6863	6953	7043	7133	7223	7313	7403	7493	7583		
28	7673	7763	7853	7942	8032	8122	8212	8302	8392	8482		
29	8572	8662	8752	8842	8932	9022	9112	9202	9291	9381		
4830	9471	9561	9651	9741	9831	9921	0011	0101	0191	0280		
31	6840370	0460	0550	0640	0730	0820	0910	1000	1089	1179		
32	1269	1359	1449	1539	1629	1719	1808	1898	1988	2078		
33	2168	2258	2348	2438	2527	2617	2707	2797	2887	2977		
34	3066	3156	3246	3336	3426	3516	3605	3695	3785	3875		
35	3965	4055	4144	4234	4324	4414	4504	4594	4683	4773		
36	4863	4953	5043	5132	5222	5312	5402	5492	5581	5671		
37	5761	5851	5940	6030	6120	6210	6300	6389	6479	6569		
38	6659	6748	6838	6928	7018	7107	7197	7287	7377	7466		
39	7556	7646	7736	7825	7915	8005	8095	8184	8274	8364		
4840	8454	8543	8633	8723	8813	8902	8992	9082	9171	9261		
41	9351	9441	9530	9620	9710	9799	9889	9979	0068	0158		
42	6850248	0338	0427	0517	0607	0696	0786	0876	0965	1055		
43	1145	1234	1324	1414	1503	1593	1683	1772	1862	1952		
44	2041	2131	2221	2310	2400	2490	2579	2669	2759	2848		
45	2938	3027	3117	3207	3296	3386	3476	3565	3655	3744		
46	3834	3924	4013	4103	4193	4282	4372	4461	4551	4641		
47	4730	4820	4909	4999	5089	5178	5268	5357	5447	5537		
48	5626	5716	5805	5895	5984	6074	6164	6253	6343	6432		
49	6522	6611	6701	6791	6880	6970	7059	7149	7238	7328		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

90

1	9
2	18
3	27
4	36
5	45
6	54
7	63
8	72
9	81

90

89

1	9
2	18
3	27
4	36
5	45
6	53
7	62
8	71
9	80

(84) LOGARITHMS N. 485 L. 685											
N	O	I	2	3	4	5	6	7	8	9	D Pro
4850	6857417	7507	7596	7686	7776	7865	7955	8044	8134	8223	
51	8313	8402	8492	8581	8671	8760	8850	8939	9029	9118	
52	9208	9297	9387	9476	9566	9655	9745	9834	9924	0013	
53	6860103	0192	0282	0371	0461	0550	0640	0729	0819	0908	
54	0998	1087	1177	1266	1356	1445	1535	1624	1713	1803	
55	1892	1982	2071	2161	2250	2340	2429	2518	2608	2697	
56	2787	2876	2966	3055	3145	3234	3323	3413	3502	3592	
57	3681	3770	3860	3949	4039	4128	4217	4307	4396	4486	
58	4575	4665	4754	4843	4933	5022	5111	5201	5290	5380	
59	5469	5558	5648	5737	5826	5916	6005	6095	6184	6273	
4860	6363	6452	6541	6631	6720	6809	6899	6988	7078	7167	
61	7256	7346	7435	7524	7614	7703	7792	7882	7971	8060	
62	8150	8239	8328	8418	8507	8596	8685	8775	8864	8953	
63	9043	9132	9221	9311	9400	9489	9578	9668	9757	9846	
64	9936	0025	0114	0204	0293	0382	0471	0561	0650	0739	
65	6870828	0918	1007	1096	1186	1275	1364	1453	1543	1632	
66	1721	1810	1900	1989	2078	2167	2257	2346	2435	2524	
67	2613	2703	2792	2881	2970	3060	3149	3238	3327	3416	
68	3506	3595	3684	3773	3863	3952	4041	4130	4219	4309	
69	4398	4487	4576	4665	4755	4844	4933	5022	5111	5200	
4870	5290	5379	5468	5557	5646	5735	5825	5914	6003	6092	
71	6181	6270	6360	6449	6538	6627	6716	6805	6895	6984	
72	7073	7162	7251	7340	7429	7518	7608	7697	7786	7875	
73	7964	8053	8142	8231	8321	8410	8499	8588	8677	8766	
74	8855	8944	9033	9123	9212	9301	9390	9479	9568	9657	
75	9746	9835	9924	0013	0103	0192	0281	0370	0459	0548	
76	6880637	0726	0815	0904	0993	1082	1171	1260	1349	1439	
77	1528	1617	1706	1795	1884	1973	2062	2151	2240	2329	
78	2418	2507	2596	2685	2774	2863	2952	3041	3130	3219	
79	3308	3397	3486	3575	3664	3753	3842	3931	4020	4109	89
4880	4198	4287	4376	4465	4554	4643	4732	4821	4910	4999	
81	5088	5177	5266	5355	5444	5533	5622	5711	5800	5889	
82	5978	6067	6156	6245	6334	6423	6511	6600	6689	6778	
83	6867	6956	7045	7134	7223	7312	7401	7490	7579	7668	
84	7757	7845	7934	8023	8112	8201	8290	8379	8468	8557	
85	8646	8735	8823	8912	9001	9090	9179	9268	9357	9446	
86	9535	9624	9712	9801	9890	9979	0068	0157	0246	0335	
87	6890423	0512	0601	0690	0779	0868	0957	1045	1134	1223	
88	1312	1401	1490	1579	1667	1756	1845	1934	2023	2112	
89	2200	2289	2378	2467	2556	2645	2733	2822	2911	3000	
4890	3089	3177	3266	3355	3444	3533	3621	3710	3799	3888	
91	3977	4065	4154	4243	4332	4421	4509	4598	4687	4776	
92	4864	4953	5042	5131	5220	5308	5397	5486	5575	5663	
93	5752	5841	5930	6018	6107	6196	6285	6373	6462	6551	
94	6640	6728	6817	6906	6995	7083	7172	7261	7350	7438	
95	7527	7616	7704	7793	7882	7971	8059	8148	8237	8325	
96	8414	8503	8591	8680	8769	8858	8946	9035	9124	9212	
97	9301	9390	9478	9567	9656	9744	9833	9922	0010	0099	
98	6900188	0276	0365	0454	0542	0631	0720	0808	0897	0986	
99	1074	1163	1252	1340	1429	1518	1606	1695	1784	1872	
N	O	I	2	3	4	5	6	7	8	9	D Pts

N	O	I	2	3	4	5	6	7	8	9	D	Pro
4900	6901961	2049	2138	2227	2315	2404	2493	2581	2670	2758		
01	2847	2936	3024	3113	3201	3290	3379	3467	3556	3644		
02	3733	3822	3910	3999	4087	4176	4265	4353	4442	4530		
03	4619	4708	4796	4885	4973	5062	5150	5239	5327	5416		
04	5505	5593	5682	5770	5859	5947	6036	6124	6213	6302		
05	6390	6479	6567	6656	6744	6833	6921	7010	7098	7187		
06	7275	7364	7452	7541	7630	7718	7807	7895	7984	8072		
07	8161	8249	8338	8426	8515	8603	8692	8780	8869	8957		
08	9046	9134	9223	9311	9399	9488	9576	9665	9753	9842		
09	9930	0019	0107	0196	0284	0373	0461	0550	0638	0726		
4910	6910815	0903	0992	1080	1169	1257	1346	1434	1522	1611		88
11	1699	1788	1876	1965	2053	2141	2230	2318	2407	2495		1
12	2584	2672	2760	2849	2937	3026	3114	3202	3291	3379		2
13	3468	3556	3644	3733	3821	3910	3998	4086	4175	4263		3
14	4352	4440	4528	4617	4705	4793	4882	4970	5058	5147		4
15	5235	5324	5412	5500	5589	5677	5765	5854	5942	6030		5
16	6119	6207	6295	6384	6472	6560	6649	6737	6825	6914		6
17	7002	7090	7179	7267	7355	7444	7532	7620	7709	7797		7
18	7885	7974	8062	8150	8238	8327	8415	8503	8592	8680		8
19	8768	8857	8945	9033	9121	9210	9298	9386	9474	9563		9
4920	9651	9739	9828	9916	0004	0092	0181	0269	0357	0445		
21	6920534	0622	0710	0798	0887	0975	1063	1151	1240	1328		
22	1416	1504	1593	1681	1769	1857	1945	2034	2122	2210		
23	2298	2387	2475	2563	2651	2739	2828	2916	3004	3092		
24	2180	3269	3357	3445	3533	3621	3710	3798	3886	3974		
25	4062	4151	4239	4327	4415	4503	4591	4680	4768	4856		
26	4944	5032	5120	5209	5297	5385	5473	5561	5649	5737		
27	5826	5914	6002	6090	6178	6266	6354	6443	6531	6619		
28	6707	6795	6883	6971	7059	7148	7236	7324	7412	7500		
29	7588	7676	7764	7853	7941	8029	8117	8205	8293	8381		
4930	8469	8557	8645	8733	8822	8910	8998	9086	9174	9262		
31	9350	9438	9526	9614	9702	9790	9878	9967	0055	0143		
32	6930231	0319	0407	0495	0583	0671	0759	0847	0935	1023		87
33	1111	1199	1287	1375	1463	1551	1639	1727	1815	1903		1
34	1991	2079	2167	2256	2344	2432	2520	2608	2696	2784		2
35	2872	2960	3048	3136	3224	3312	3400	3488	3576	3664		3
36	3752	3839	3927	4015	4103	4191	4279	4367	4455	4543		4
37	4631	4719	4807	4895	4983	5071	5159	5247	5335	5423		5
38	5511	5599	5687	5775	5863	5951	6039	6126	6214	6302		6
39	6390	6478	6566	6654	6742	6830	6918	7006	7094	7182		7
4940	7269	7357	7445	7533	7621	7709	7797	7885	7973	8061		8
41	8149	8236	8324	8412	8500	8588	8676	8764	8852	8940		9
42	9027	9115	9203	9291	9379	9467	9555	9643	9730	9818		
43	9906	9994	0082	0170	0258	0345	0433	0521	0609	0697		
44	6940785	0872	0960	1048	1136	1224	1312	1399	1487	1575		
45	1663	1751	1839	1926	2014	2102	2190	2278	2366	2453		
46	2541	2629	2717	2805	2892	2980	3068	3156	3244	3331		
47	3419	3507	3595	3682	3770	3858	3946	4034	4121	4209		
48	4297	4385	4472	4560	4648	4736	4824	4911	4999	5087		
49	5175	5262	5350	5438	5526	5613	5701	5789	5877	5964		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

(86)

LOGARITHMS

N. 495 L. 694

N	0	1	2	3	4	5	6	7	8	9	D	Pro
4950	6946052	6140	6227	6315	6403	6491	6578	6666	6754	6842		
51	6929	7017	7105	7192	7280	7368	7456	7543	7631	7719		
52	7806	7894	7982	8069	8157	8245	8333	8420	8508	8596		
53	8683	8771	8859	8946	9034	9122	9209	9297	9385	9472		
54	9560	9648	9735	9823	9911	9998	0086	0174	0261	0349		
55	6950437	0524	0612	0700	0787	0875	0962	1050	1138	1225		
56	1313	1401	1488	1576	1663	1751	1839	1926	2014	2102		
57	2189	2277	2364	2452	2540	2627	2715	2802	2890	2978		
58	3065	3153	3240	3328	3416	3503	3591	3678	3766	3854		
59	3941	4029	4116	4204	4291	4379	4467	4554	4642	4729		
4960	4817	4904	4992	5079	5167	5255	5342	5430	5517	5605		
61	5692	5780	5867	5955	6042	6130	6217	6305	6393	6480		
62	6568	6655	6743	6830	6918	7005	7093	7180	7268	7355		
63	7443	7530	7618	7705	7793	7880	7968	8055	8143	8230		
64	8318	8405	8493	8580	8668	8755	8843	8930	9018	9105		
65	9193	9280	9367	9455	9542	9630	9717	9805	9892	9980		
66	6960067	0155	0242	0330	0417	0504	0592	0679	0767	0854		
67	0942	1029	1116	1204	1291	1379	1466	1554	1641	1728		
68	1816	1903	1991	2078	2166	2253	2340	2428	2515	2603		
69	2690	2777	2865	2952	3040	3127	3214	3302	3389	3477		
4970	3564	3651	3739	3826	3913	4001	4088	4176	4263	4350		
71	4438	4525	4612	4700	4787	4874	4962	5049	5137	5224		
72	5311	5399	5486	5573	5661	5748	5835	5923	6010	6097		
73	6185	6272	6359	6447	6534	6621	6709	6796	6883	6970		
74	7058	7145	7232	7320	7407	7494	7582	7669	7756	7844		
75	7931	8018	8105	8193	8280	8367	8455	8542	8629	8716		
76	8804	8891	8978	9066	9153	9240	9327	9415	9502	9589		
77	9676	9764	9851	9938	0025	0113	0200	0287	0374	0462		
78	6970549	0636	0723	0811	0898	0985	1072	1160	1247	1334		
79	1421	1508	1596	1683	1770	1857	1945	2032	2119	2206		
4980	2293	2381	2468	2555	2642	2729	2817	2904	2991	3078		
81	3165	3253	3340	3427	3514	3601	3689	3776	3863	3950		
82	4037	4124	4212	4299	4386	4473	4560	4647	4735	4822		
83	4909	4996	5083	5170	5257	5345	5432	5519	5606	5693		
84	5780	5867	5955	6042	6129	6216	6303	6390	6477	6565		
85	6652	6739	6826	6913	7000	7087	7174	7261	7349	7436		
86	7523	7610	7697	7784	7871	7958	8045	8132	8220	8307		
87	8394	8481	8568	8655	8742	8829	8916	9003	9090	9177		
88	9264	9352	9439	9526	9613	9700	9787	9874	9961	0048		
89	6980135	0222	0309	0396	0483	0570	0657	0744	0831	0918		
4990	1005	1092	1180	1267	1354	1441	1528	1615	1702	1789		
91	1876	1963	2050	2137	2224	2311	2398	2485	2572	2659		
92	2746	2833	2920	3007	3094	3181	3268	3355	3442	3529		
93	3616	3703	3790	3877	3964	4051	4138	4224	4311	4398		
94	4485	4572	4659	4746	4833	4920	5007	5094	5181	5268		
95	5355	5442	5529	5616	5703	5790	5877	5964	6050	6137		
96	6224	6311	6398	6485	6572	6659	6746	6833	6920	7007		
97	7093	7180	7267	7354	7441	7528	7615	7702	7789	7876		
98	7963	8049	8136	8223	8310	8397	8484	8571	8658	8744		
99	8831	8918	9005	9092	9179	9266	9353	9439	9526	9613		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

88

1	9
2	17
3	26
4	35
5	44
6	53
7	62
8	70
9	79

87

1	9
2	17
3	26
4	35
5	44
6	52
7	61
8	70
9	78

87

N	O	I	2	3	4	5	6	7	8	9	D	Pro
5000	6989700	9787	9874	9961	0047	0134	0221	0308	0395	0482		
01	6990569	0655	0742	0829	0916	1003	1090	1176	1263	1350		
02	1437	1524	1611	1697	1784	1871	1958	2045	2131	2218		
03	2305	2392	2479	2565	2652	2739	2826	2913	2999	3086		
04	3173	3260	3347	3433	3520	3607	3694	3780	3867	3954		
05	4041	4128	4214	4301	4388	4475	4561	4648	4735	4822		
06	4908	4995	5082	5169	5255	5342	5429	5516	5602	5689		
07	5776	5863	5949	6036	6123	6210	6296	6383	6470	6556		
08	6643	6730	6817	6903	6990	7077	7163	7250	7337	7424		
09	7510	7597	7684	7770	7857	7944	8031	8117	8204	8291		
5010	8377	8464	8551	8637	8724	8811	8897	8984	9071	9157		
11	9244	9331	9417	9504	9591	9677	9764	9851	9937	0024		
12	7000111	0197	0284	0371	0457	0544	0630	0717	0804	0890		
13	0977	1064	1150	1237	1324	1410	1497	1583	1670	1757		
14	1843	1930	2017	2103	2190	2276	2363	2450	2536	2623		
15	2709	2796	2883	2969	3056	3142	3229	3316	3402	3489		
16	3575	3662	3748	3835	3922	4008	4095	4181	4268	4354		
17	4441	4528	4614	4701	4787	4874	4960	5047	5133	5220		
18	5307	5393	5480	5566	5653	5739	5826	5912	5999	6085		
19	6172	6258	6345	6432	6518	6605	6691	6778	6864	6951		
5020	7037	7124	7210	7297	7383	7470	7556	7643	7729	7816		
21	7902	7989	8075	8162	8248	8335	8421	8508	8594	8681		
22	8767	8854	8940	9027	9113	9199	9286	9372	9459	9545		
23	9632	9718	9805	9891	9978	0064	0151	0237	0323	0410		
24	7010496	0583	0669	0756	0842	0929	1015	1101	1188	1274		
25	1361	1447	1534	1620	1706	1793	1879	1966	2052	2138		
26	2225	2311	2398	2484	2570	2657	2743	2830	2916	3002		
27	3089	3175	3262	3348	3434	3521	3607	3694	3780	3866		
28	3953	4039	4125	4212	4298	4385	4471	4557	4644	4730		
29	4816	4903	4989	5075	5162	5248	5334	5421	5507	5594		
5030	5680	5766	5853	5939	6025	6112	6198	6284	6371	6457		
31	6543	6629	6716	6802	6888	6975	7061	7147	7234	7320		
32	7406	7493	7579	7665	7752	7838	7924	8010	8097	8183		
33	8269	8356	8442	8528	8614	8701	8787	8873	8960	9046		
34	9132	9218	9305	9391	9477	9563	9650	9736	9822	9908		
35	9995	0081	0167	0254	0340	0426	0512	0598	0685	0771		
36	7020857	0943	1030	1116	1202	1288	1375	1461	1547	1633		
37	1720	1806	1892	1978	2064	2151	2237	2323	2409	2495		
38	2582	2668	2754	2840	2926	3013	3099	3185	3271	3357		
39	3444	3530	3616	3702	3788	3874	3961	4047	4133	4219		
5040	4305	4392	4478	4564	4650	4736	4822	4909	4995	5081		
41	5167	5253	5339	5425	5512	5598	5684	5770	5856	5942		
42	6028	6115	6201	6287	6373	6459	6545	6631	6717	6804		
43	6890	6976	7062	7148	7234	7320	7406	7492	7579	7665		
44	7751	7837	7923	8009	8095	8181	8267	8353	8440	8526		
45	8612	8698	8784	8870	8956	9042	9128	9214	9300	9386		
46	9472	9559	9645	9731	9817	9903	9989	0075	0161	0247		
47	7030333	0419	0505	0591	0677	0763	0849	0935	1021	1107		
48	1193	1279	1366	1452	1538	1624	1710	1796	1882	1968		
49	2054	2140	2226	2312	2398	2484	2570	2656	2742	2828		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

87

1	9
2	17
3	26
4	35
5	44
6	52
7	61
8	70
9	78

86

1	9
2	17
3	26
4	34
5	43
6	52
7	60
8	69
9	77

86

(88)		LOGARITHMS										N. 505 L. 703	
N	O	I	2	3	4	5	6	7	8	9	D	Pro	
5050	7032914	3000	3086	3172	3258	3344	3430	3516	3602	3688			
51	3774	3860	3946	4032	4118	4204	4290	4376	4461	4547			
52	4633	4719	4805	4891	4977	5063	5149	5235	5321	5407			
53	5493	5579	5665	5751	5837	5923	6009	6095	6181	6266			
54	6352	6438	6524	6610	6696	6782	6868	6954	7040	7126			
55	7212	7298	7383	7469	7555	7641	7727	7813	7899	7985			
56	8071	8157	8242	8328	8414	8500	8586	8672	8758	8844			
57	8930	9015	9101	9187	9273	9359	9445	9531	9617	9702			
58	9788	9874	9960	0046	0132	0218	0303	0389	0475	0561			
59	7040647	0733	0818	0904	0990	1076	1162	1248	1334	1419			
5060	1505	1591	1677	1763	1848	1934	2020	2106	2192	2278			
61	2363	2449	2535	2621	2707	2792	2878	2964	3050	3136		86	
62	3221	3307	3393	3479	3565	3650	3736	3822	3908	3993		1	
63	4079	4165	4251	4337	4422	4508	4594	4680	4765	4851		2	
64	4937	5023	5108	5194	5280	5366	5452	5537	5623	5709		3	
65	5794	5880	5966	6052	6137	6223	6309	6395	6480	6566		4	
66	6652	6738	6823	6909	6995	7080	7166	7252	7338	7423		5	
67	7509	7595	7680	7766	7852	7938	8023	8109	8195	8280		6	
68	8366	8452	8537	8623	8709	8795	8880	8966	9052	9137		7	
69	9223	9309	9394	9480	9566	9651	9737	9823	9908	9994		8	
5070	7050080	0165	0251	0337	0422	0508	0594	0679	0765	0850		9	
71	0936	1022	1107	1193	1279	1364	1450	1536	1621	1707			
72	1792	1878	1964	2049	2135	2221	2306	2392	2477	2563			
73	2649	2734	2820	2905	2991	3077	3162	3248	3333	3419			
74	3505	3590	3676	3761	3847	3933	4018	4104	4189	4275			
75	4360	4446	4532	4617	4703	4788	4874	4959	5045	5131			
76	5216	5302	5387	5473	5558	5644	5729	5815	5901	5986			
77	6072	6157	6243	6328	6414	6499	6585	6670	6756	6841			
78	6927	7012	7098	7184	7269	7355	7440	7526	7611	7697			
79	7782	7868	7953	8039	8124	8210	8295	8381	8466	8552			
5080	8637	8723	8808	8894	8979	9065	9150	9236	9321	9406			
81	9492	9577	9663	9748	9834	9919	0005	0090	0176	0261		85	
82	7060347	0432	0518	0603	0688	0774	0859	0945	1030	1116		1	
83	1201	1287	1372	1457	1543	1628	1714	1799	1885	1970		2	
84	2055	2141	2226	2312	2397	2483	2568	2653	2739	2824		3	
85	2910	2995	3080	3166	3251	3337	3422	3507	3593	3678		4	
86	3764	3849	3934	4020	4105	4190	4276	4361	4447	4532		5	
87	4617	4703	4788	4873	4959	5044	5130	5215	5300	5386		6	
88	5471	5556	5642	5727	5812	5898	5983	6068	6154	6239		7	
89	6325	6410	6495	6581	6666	6751	6837	6922	7007	7092		8	
5090	7178	7263	7348	7434	7519	7604	7690	7775	7860	7946		9	
91	8031	8116	8202	8287	8372	8457	8543	8628	8713	8799			
92	8884	8969	9055	9140	9225	9310	9396	9481	9566	9651			
93	9737	9822	9907	9993	0078	0163	0248	0334	0419	0504			
94	7070589	0675	0760	0845	0930	1016	1101	1186	1271	1357			
95	1442	1527	1612	1698	1783	1868	1953	2039	2124	2209			
96	2294	2379	2465	2550	2635	2720	2805	2891	2976	3061			
97	3146	3232	3317	3402	3487	3572	3658	3743	3828	3913			
98	3998	4083	4169	4254	4339	4424	4509	4595	4680	4765			
99	4850	4935	5020	5106	5191	5276	5361	5446	5531	5617			
N	O	I	2	3	4	5	6	7	8	9	D	Pts	

N. 510 L. 707 OF NUMBERS.											(89)
N	O	I	2	3	4	5	6	7	8	9	D Pro
5100	7075702	5787	5872	5957	6042	6128	6213	6298	6383	6468	85
01	6553	6638	6724	6809	6894	6979	7064	7149	7234	7319	
02	7405	7490	7575	7660	7745	7830	7915	8000	8085	8171	
03	8256	8341	8426	8511	8596	8681	8766	8851	8936	9022	
04	9107	9192	9277	9362	9447	9532	9617	9702	9787	9872	
05	9957	0043	0128	0213	0298	0383	0468	0553	0638	0723	
06	7080808	0893	0978	1063	1148	1233	1318	1403	1488	1574	
07	1659	1744	1829	1914	1999	2084	2169	2254	2339	2424	
08	2509	2594	2679	2764	2849	2934	3019	3104	3189	3274	
09	3359	3444	3529	3614	3699	3784	3869	3954	4039	4124	
5110	4209	4294	4379	4464	4549	4634	4719	4804	4889	4974	
11	5059	5144	5229	5314	5399	5484	5569	5654	5739	5823	
12	5908	5993	6078	6163	6248	6333	6418	6503	6588	6673	
13	6758	6843	6928	7013	7098	7183	7268	7352	7437	7522	
14	7607	7692	7777	7862	7947	8032	8117	8202	8287	8371	
15	8456	8541	8626	8711	8796	8881	8966	9051	9136	9220	
16	9305	9390	9475	9560	9645	9730	9815	9900	9984	0069	
17	7090154	0239	0324	0409	0494	0579	0663	0748	0833	0918	
18	1003	1088	1173	1257	1342	1427	1512	1597	1682	1766	
19	1851	1936	2021	2106	2191	2275	2360	2445	2530	2615	
5120	2700	2784	2869	2954	3039	3124	3209	3293	3378	3463	84
21	3548	3633	3717	3802	3887	3972	4057	4141	4226	4311	
22	4396	4481	4565	4650	4735	4820	4904	4989	5074	5159	
23	5244	5328	5413	5498	5583	5667	5752	5837	5922	6006	
24	6091	6176	6261	6345	6430	6515	6600	6684	6769	6854	
25	6939	7023	7108	7193	7278	7362	7447	7532	7617	7701	
26	7786	7871	7955	8040	8125	8210	8294	8379	8464	8548	
27	8633	8718	8803	8887	8972	9057	9141	9226	9311	9395	
28	9480	9565	9650	9734	9819	9904	9988	0073	0158	0242	
29	7100327	0412	0496	0581	0666	0750	0835	0920	1004	1089	
5130	1174	1258	1343	1428	1512	1597	1682	1766	1851	1936	
31	2020	2105	2189	2274	2359	2443	2528	2613	2697	2782	
32	2866	2951	3036	3120	3205	3290	3374	3459	3543	3628	
33	3713	3797	3882	3966	4051	4136	4220	4305	4389	4474	
34	4559	4643	4728	4812	4897	4982	5066	5151	5235	5320	
35	5404	5489	5574	5658	5743	5827	5912	5996	6081	6166	
36	6250	6335	6419	6504	6588	6673	6757	6842	6927	7011	
37	7096	7180	7265	7349	7434	7518	7603	7687	7772	7856	
38	7941	8026	8110	8195	8279	8364	8448	8533	8617	8702	
39	8786	8871	8955	9040	9124	9209	9293	9378	9462	9547	
5140	9631	9716	9800	9885	9969	0054	0138	0223	0307	0392	84
41	7110476	0561	0645	0729	0814	0898	0983	1067	1152	1236	
42	1321	1405	1490	1574	1659	1743	1827	1912	1996	2081	
43	2165	2250	2334	2419	2503	2587	2672	2756	2841	2925	
44	3010	3094	3178	3263	3347	3432	3516	3601	3685	3769	
45	3854	3938	4023	4107	4191	4276	4360	4445	4529	4613	
46	4698	4782	4867	4951	5035	5120	5204	5289	5373	5457	
47	5542	5626	5710	5795	5879	5964	6048	6132	6217	6301	
48	6385	6470	6554	6638	6723	6807	6892	6976	7060	7145	
49	7229	7313	7398	7482	7566	7651	7735	7819	7904	7988	
N	O	I	2	3	4	5	6	7	8	9	D Pts

N	0	1	2	3	4	5	6	7	8	9	D	Pro
5150	7118072	8157	8241	8325	8410	8494	8578	8663	8747	8831		
51	8915	9000	9084	9168	9253	9337	9421	9506	9590	9674		
52	9759	9843	9927	0011	0096	0180	0264	0349	0433	0517		
53	7120601	0686	0770	0854	0939	1023	1107	1191	1276	1360		
54	1444	1528	1613	1697	1781	1865	1950	2034	2118	2202		
55	2287	2371	2455	2539	2624	2708	2792	2876	2961	3045		
56	3129	3213	3298	3382	3466	3550	3634	3719	3803	3887		
57	3971	4056	4140	4224	4308	4392	4477	4561	4645	4729		
58	4813	4898	4982	5066	5150	5234	5319	5403	5487	5571		
59	5655	5739	5824	5908	5992	6076	6160	6245	6329	6413		
5160	6497	6581	6665	6750	6834	6918	7002	7086	7170	7254		
61	7339	7423	7507	7591	7675	7759	7843	7928	8012	8096		
62	8180	8264	8348	8432	8517	8601	8685	8769	8853	8937		
63	9021	9105	9189	9274	9358	9442	9526	9610	9694	9778		
64	9862	9946	0031	0115	0199	0283	0367	0451	0535	0619		
65	7130703	0787	0871	0956	1040	1124	1208	1292	1376	1460		
66	1544	1628	1712	1796	1880	1964	2048	2132	2217	2301		
67	2385	2469	2553	2637	2721	2805	2889	2973	3057	3141		
68	3225	3309	3393	3477	3561	3645	3729	3813	3897	3981		
69	4065	4149	4233	4317	4401	4485	4569	4653	4737	4821		
5170	4905	4989	5073	5157	5241	5325	5409	5493	5577	5661		
71	5745	5829	5913	5997	6081	6165	6249	6333	6417	6501		
72	6585	6669	6753	6837	6921	7005	7089	7173	7257	7341		
73	7425	7509	7593	7677	7761	7845	7928	8012	8096	8180		
74	8264	8348	8432	8516	8600	8684	8768	8852	8936	9020		
75	9104	9187	9271	9355	9439	9523	9607	9691	9775	9859		
76	9943	0027	0110	0194	0278	0362	0446	0530	0614	0698		
77	7140782	0866	0949	1033	1117	1201	1285	1369	1453	1537		
78	1620	1704	1788	1872	1956	2040	2124	2208	2291	2375		
79	2459	2543	2627	2711	2795	2878	2962	3046	3130	3214		
5180	3298	3381	3465	3549	3633	3717	3801	3884	3968	4052		
81	4136	4220	4304	4387	4471	4555	4639	4723	4806	4890		
82	4974	5058	5142	5226	5309	5393	5477	5561	5645	5728		
83	5812	5896	5980	6063	6147	6231	6315	6399	6482	6566		
84	6650	6734	6817	6901	6985	7069	7153	7236	7320	7404		
85	7488	7571	7655	7739	7823	7906	7990	8074	8158	8241		
86	8325	8409	8493	8576	8660	8744	8828	8911	8995	9079		
87	9162	9246	9330	9414	9497	9581	9665	9749	9832	9916		
88	7150000	0083	0167	0251	0335	0418	0502	0586	0669	0753		
89	0837	0920	1004	1088	1171	1255	1339	1423	1506	1590		
5190	1674	1757	1841	1925	2008	2092	2176	2259	2343	2427		
91	2510	2594	2678	2761	2845	2929	3012	3096	3180	3263		
92	3347	3430	3514	3598	3681	3765	3849	3932	4016	4100		
93	4183	4267	4350	4434	4518	4601	4685	4769	4852	4936		
94	5019	5103	5187	5270	5354	5438	5521	5605	5688	5772		
95	5856	5939	6023	6106	6190	6273	6357	6441	6524	6608		
96	6691	6775	6859	6942	7026	7109	7193	7276	7360	7444		
97	7527	7611	7694	7778	7861	7945	8029	8112	8196	8279		
98	8363	8446	8530	8613	8697	8780	8864	8948	9031	9115		
99	9198	9282	9365	9449	9532	9616	9699	9783	9866	9950		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

85

1	9
2	17
3	26
4	34
5	43
6	51
7	60
8	68
9	77

84

84

1	8
2	17
3	25
4	34
5	42
6	50
7	59
8	67
9	76

N	0	1	2	3	4	5	6	7	8	9	D	Pro
5200	7160033	0117	0200	0284	0367	0451	0535	0618	0702	0785		
01	0869	0952	1036	1119	1203	1286	1370	1453	1537	1620		
02	1703	1787	1870	1954	2037	2121	2204	2288	2371	2455		
03	2538	2622	2705	2789	2872	2956	3039	3123	3206	3289		
04	3373	3456	3540	3623	3707	3790	3874	3957	4040	4124		
05	4207	4291	4374	4458	4541	4625	4708	4791	4875	4958		
06	5042	5125	5208	5292	5375	5459	5542	5626	5709	5792		
07	5876	5959	6043	6126	6209	6293	6376	6460	6543	6626		
08	6710	6793	6877	6960	7043	7127	7210	7293	7377	7460		
09	7544	7627	7710	7794	7877	7960	8044	8127	8211	8294		
5210	8377	8461	8544	8627	8711	8794	8877	8961	9044	9127		
11	9211	9294	9377	9461	9544	9627	9711	9794	9877	9961		
12	7170044	0127	0211	0294	0377	0461	0544	0627	0711	0794		
13	0877	0961	1044	1127	1210	1294	1377	1460	1544	1627		
14	1710	1794	1877	1960	2043	2127	2210	2293	2377	2460		
15	2543	2626	2710	2793	2876	2959	3043	3126	3209	3293		
16	3376	3459	3542	3626	3709	3792	3875	3959	4042	4125		
17	4208	4292	4375	4458	4541	4625	4708	4791	4874	4958		
18	5041	5124	5207	5290	5374	5457	5540	5623	5707	5790		
19	5873	5956	6039	6123	6206	6289	6372	6455	6539	6622		
5220	6705	6788	6871	6955	7038	7121	7204	7287	7371	7454		
21	7537	7620	7703	7786	7870	7953	8036	8119	8202	8286		
22	8369	8452	8535	8618	8701	8784	8868	8951	9034	9117		
23	9200	9283	9367	9450	9533	9616	9699	9782	9865	9949		
24	7180032	0115	0198	0281	0364	0447	0530	0614	0697	0780		
25	0863	0946	1029	1112	1195	1279	1362	1445	1528	1611		
26	1694	1777	1860	1943	2026	2110	2193	2276	2359	2442		
27	2525	2608	2691	2774	2857	2940	3023	3107	3190	3273		
28	3356	3439	3522	3605	3688	3771	3854	3937	4020	4103		
29	4186	4269	4353	4436	4519	4602	4685	4768	4851	4934		
5230	5017	5100	5183	5266	5349	5432	5515	5598	5681	5764		
31	5847	5930	6013	6096	6179	6262	6345	6428	6511	6594		
32	6677	6760	6843	6926	7009	7092	7175	7258	7341	7424		
33	7507	7590	7673	7756	7839	7922	8005	8088	8171	8254		
34	8337	8420	8503	8586	8669	8752	8835	8918	9001	9084		
35	9167	9250	9333	9416	9499	9582	9665	9748	9830	9913		
36	9996	0079	0162	0245	0328	0411	0494	0577	0660	0743		
37	7190826	0909	0992	1075	1157	1240	1323	1406	1489	1572		
38	1655	1738	1821	1904	1987	2069	2152	2235	2318	2401		
39	2484	2567	2650	2733	2816	2898	2981	3064	3147	3230		
5240	3313	3396	3479	3562	3644	3727	3810	3893	3976	4059		
41	4142	4224	4307	4390	4473	4556	4639	4722	4804	4887		
42	4970	5053	5136	5219	5302	5384	5467	5550	5633	5716		
43	5799	5881	5964	6047	6130	6213	6296	6378	6461	6544		
44	6627	6710	6792	6875	6958	7041	7124	7207	7289	7372		
45	7455	7538	7621	7703	7786	7869	7952	8034	8117	8200		
46	8283	8366	8448	8531	8614	8697	8780	8862	8945	9028		
47	9111	9193	9276	9359	9442	9524	9607	9690	9773	9856		
48	9938	0021	0104	0187	0269	0352	0435	0518	0600	0683		
49	7200766	0848	0931	1014	1097	1179	1262	1345	1428	1510		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

83

1	8
2	17
3	25
4	33
5	42
6	50
7	58
8	66
9	74

83

82

1	8
2	16
3	25
4	33
5	41
6	49
7	57
8	66
9	74

(92)		LOGARITHMS										N. 525 .L. 720	
N	O	I	2	3	4	5	6	7	8	9	D	Pro	
5250	7201593	1676	1758	1841	1924	2007	2089	2172	2255	2337			
51	2420	2503	2586	2668	2751	2834	2916	2999	3082	3164			
52	3247	3330	3413	3495	3578	3661	3743	3826	3909	3991			
53	4074	4157	4239	4322	4405	4487	4570	4653	4735	4818			
54	4901	4983	5066	5149	5231	5314	5397	5479	5562	5645			
55	5727	5810	5892	5975	6058	6140	6223	6305	6388	6471			
56	6554	6636	6719	6801	6884	6967	7049	7132	7215	7297			
57	7380	7462	7545	7628	7710	7793	7875	7958	8041	8123			
58	8206	8288	8371	8454	8536	8619	8701	8784	8867	8949			
59	9032	9114	9197	9279	9362	9445	9527	9610	9692	9775			
5260	9857	9940	0023	0105	0188	0270	0353	0435	0518	0600			
61	7210683	0766	0848	0931	1013	1096	1178	1261	1343	1426		83	
62	1508	1591	1674	1756	1839	1921	2004	2086	2169	2251		17	
63	2334	2416	2499	2581	2664	2746	2829	2911	2994	3076		25	
64	3159	3241	3324	3406	3489	3571	3654	3736	3819	3901		33	
65	3984	4066	4149	4231	4314	4396	4479	4561	4644	4726		42	
66	4809	4891	4973	5056	5138	5221	5303	5386	5468	5551		50	
67	5633	5716	5798	5881	5963	6045	6128	6210	6293	6375		58	
68	6458	6540	6623	6705	6787	6870	6952	7035	7117	7200		66	
69	7282	7364	7447	7529	7612	7694	7777	7859	7941	8024		75	
5270	8106	8189	8271	8353	8436	8518	8601	8683	8765	8848			
71	8930	9013	9095	9177	9260	9342	9424	9507	9589	9672			
72	9754	9836	9919	0001	0084	0166	0248	0331	0413	0495			
73	7220578	0660	0742	0825	0907	0990	1072	1154	1237	1319			
74	1401	1484	1566	1648	1731	1813	1895	1978	2060	2142			
75	2225	2307	2389	2472	2554	2636	2719	2801	2883	2966			
76	3048	3130	3212	3295	3377	3459	3542	3624	3706	3789			
77	3871	3953	4036	4118	4200	4282	4365	4447	4529	4612			
78	4694	4776	4858	4941	5023	5105	5188	5270	5352	5434			
79	5517	5599	5681	5763	5846	5928	6010	6092	6175	6257			
5280	6339	6421	6504	6586	6668	6750	6833	6915	6997	7079			
81	7162	7244	7326	7408	7491	7573	7655	7737	7820	7902		82	
82	7984	8066	8148	8231	8313	8395	8477	8559	8642	8724		16	
83	8806	8888	8971	9053	9135	9217	9299	9382	9464	9546		25	
84	9628	9710	9792	9875	9957	0039	0121	0203	0286	0368		33	
85	7230450	0532	0614	0696	0779	0861	0943	1025	1107	1189		41	
86	1272	1354	1436	1518	1600	1682	1765	1847	1929	2011		49	
87	2093	2175	2257	2340	2422	2504	2586	2668	2750	2832		57	
88	2914	2997	3079	3161	3243	3325	3407	3489	3571	3654		66	
89	3736	3818	3900	3982	4064	4146	4228	4310	4393	4475		74	
5290	4557	4639	4721	4803	4885	4967	5049	5131	5213	5296			
91	5378	5460	5542	5624	5706	5788	5870	5952	6034	6116			
92	6198	6280	6362	6445	6527	6609	6691	6773	6855	6937			
93	7019	7101	7183	7265	7347	7429	7511	7593	7675	7757			
94	7839	7921	8003	8086	8167	8250	8332	8414	8496	8578			
95	8660	8742	8824	8906	8988	9070	9152	9234	9316	9398			
96	9480	9562	9644	9726	9808	9890	9972	0054	0136	0218	82		
97	7240300	0382	0464	0546	0628	0710	0792	0874	0956	1038			
98	1120	1202	1283	1365	1447	1529	1611	1693	1775	1857			
99	1939	2021	2103	2185	2267	2349	2431	2513	2595	2677			
N	O	I	2	3	4	5	6	7	8	9	D	Pts	

N	O	I	2	3	4	5	6	7	8	9	D	Pro
5300	7242759	2841	2923	3005	3086	3168	3250	3332	3414	3496		
01	3578	3660	3742	3824	3906	3988	4070	4151	4233	4315		
02	4397	4479	4561	4643	4725	4807	4889	4971	5052	5134		
03	5216	5298	5380	5462	5544	5626	5708	5790	5871	5953		
04	6035	6117	6199	6281	6363	6445	6526	6608	6690	6772		
05	6854	6936	7018	7099	7181	7263	7345	7427	7509	7591		
06	7672	7754	7836	7918	8000	8082	8164	8245	8327	8409		
07	8491	8573	8655	8736	8818	8900	8982	9064	9146	9227		
08	9309	9391	9473	9555	9636	9718	9800	9882	9964	0045		
09	7250127	0209	0291	0373	0454	0536	0618	0700	0782	0863		
5310	0945	1027	1109	1191	1272	1354	1436	1518	1599	1681		
11	1763	1845	1927	2008	2090	2172	2254	2335	2417	2499		
12	2581	2662	2744	2826	2908	2989	3071	3153	3235	3316		
13	3398	2480	3562	3643	3725	3807	3889	3970	4052	4134		
14	4216	4297	4379	4461	4542	4624	4706	4788	4869	4951		
15	5033	5114	5196	5278	5360	5441	5523	5605	5686	5768		
16	5850	5931	6013	6095	6176	6258	6340	6422	6503	6585		
17	6667	6748	6830	6912	6993	7075	7157	7238	7320	7402		
18	7483	7565	7647	7728	7810	7892	7973	8055	8137	8218		
19	8300	8382	8463	8545	8626	8708	8790	8871	8953	9035		
5320	9116	9198	9280	9361	9443	9524	9606	9688	9769	9851		
21	9933	0014	0096	0177	0259	0341	0422	0504	0585	0667		
22	7260749	0830	0912	0994	1075	1157	1238	1320	1401	1483		
23	1565	1646	1728	1809	1891	1973	2054	2136	2217	2299		
24	2380	2462	2544	2625	2707	2788	2870	2951	3033	3115		
25	3196	3278	3359	3441	3522	3604	3685	3767	3849	3930		
26	4012	4093	4175	4256	4338	4419	4501	4582	4664	4745		
27	4827	4908	4990	5072	5153	5235	5316	5398	5479	5561		
28	5642	5724	5805	5887	5968	6050	6131	6213	6294	6376		
29	6457	6539	6620	6702	6783	6865	6946	7028	7109	7191		
5330	7272	7354	7435	7517	7598	7679	7761	7842	7924	8005		
31	8087	8168	8250	8331	8413	8494	8576	8657	8739	8820		
32	8901	8983	9064	9146	9227	9309	9390	9472	9553	9634		
33	9716	9797	9879	9960	0042	0123	0204	0286	0367	0449		
34	7270530	0612	0693	0774	0856	0937	1019	1100	1181	1263		
35	1344	1426	1507	1588	1670	1751	1833	1914	1995	2077		
36	2158	2240	2321	2402	2484	2565	2647	2728	2809	2891		
37	2972	3053	3135	3216	3298	3379	3460	3542	3623	3704		
38	3786	3867	3948	4030	4111	4192	4274	4355	4437	4518		
39	4599	4681	4762	4843	4925	5006	5087	5169	5250	5331		
5340	5413	5494	5575	5657	5738	5819	5901	5982	6063	6144		
41	6226	6307	6388	6470	6551	6632	6714	6795	6876	6958		
42	7039	7120	7201	7283	7364	7445	7527	7608	7689	7770		
43	7852	7933	8014	8096	8177	8258	8339	8421	8502	8583		
44	8664	8746	8827	8908	8990	9071	9152	9233	9315	9396		
45	9477	9558	9640	9721	9802	9883	9965	0046	0127	0208		
46	7280290	0371	0452	0533	0614	0696	0777	0858	0939	1021		
47	1102	1183	1264	1346	1427	1508	1589	1670	1752	1833		
48	1914	1995	2076	2158	2239	2320	2401	2482	2564	2645		
49	2726	2807	2888	2970	3051	3132	3213	3294	3375	3457		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

83

1	8
2	16
3	25
4	33
5	41
6	49
7	57
8	66
9	74

82

1	8
2	16
3	24
4	32
5	41
6	49
7	57
8	65
9	73

(94)

LOGARITHMS

N. 535 L. 728

N	0	1	2	3	4	5	6	7	8	9	D	Pro
5350	7283538	3619	3700	3781	3863	3944	4025	4106	4187	4268		
51	4350	4431	4512	4593	4674	4755	4836	4918	4999	5080		
52	5161	5242	5323	5404	5486	5567	5648	5729	5810	5891		
53	5972	6054	6135	6216	6297	6378	6459	6540	6621	6703		
54	6784	6865	6946	7027	7108	7189	7270	7351	7433	7514		
55	7595	7676	7757	7838	7919	8000	8081	8162	8244	8325		
56	8406	8487	8568	8649	8730	8811	8892	8973	9054	9135		
57	9216	9298	9379	9460	9541	9622	9703	9784	9865	9946		
58	7290027	0108	0189	0270	0351	0432	0513	0594	0675	0757		
59	0838	0919	1000	1081	1162	1243	1324	1405	1486	1567		
5360	1648	1729	1810	1891	1972	2053	2134	2215	2296	2377		
61	2458	2539	2620	2701	2782	2863	2944	3025	3106	3187	81	82
62	3268	3349	3430	3511	3592	3673	3754	3835	3916	3997	1	8
63	4078	4159	4240	4321	4402	4483	4564	4645	4726	4807	2	16
64	4888	4969	5050	5131	5212	5292	5373	5454	5535	5616	3	25
65	5697	5778	5859	5940	6021	6102	6183	6264	6345	6426	4	33
66	6507	6588	6669	6749	6830	6911	6992	7073	7154	7235	5	41
67	7316	7397	7478	7559	7640	7721	7801	7882	7963	8044	6	49
68	8125	8206	8287	8368	8449	8530	8610	8691	8772	8853	7	57
69	8934	9015	9096	9177	9258	9338	9419	9500	9581	9662	8	66
5370	9743	9824	9905	9985	0066	0147	0228	0309	0390	0471		
71	7300552	0632	0713	0794	0875	0956	1037	1118	1198	1279		
72	1360	1441	1522	1603	1683	1764	1845	1926	2007	2088		
73	2168	2249	2330	2411	2492	2573	2653	2734	2815	2896		
74	2977	3057	3138	3219	3300	3381	3461	3542	3623	3704		
75	3785	3865	3946	4027	4108	4189	4269	4350	4431	4512		
76	4593	4673	4754	4835	4916	4997	5077	5158	5239	5320		
77	5400	5481	5562	5643	5723	5804	5885	5966	6046	6127		
78	6208	6289	6369	6450	6531	6612	6692	6773	6854	6935		
79	7015	7096	7177	7258	7338	7419	7500	7581	7661	7742		
5380	7823	7903	7984	8065	8146	8226	8307	8388	8468	8549		
81	8630	8711	8791	8872	8953	9033	9114	9195	9276	9356	81	8
82	9437	9518	9598	9679	9760	9840	9921	0002	0082	0163	1	16
83	7310244	0324	0405	0486	0567	0647	0728	0809	0889	0970	2	24
84	1051	1131	1212	1292	1373	1454	1534	1615	1696	1776	3	32
85	1857	1938	2018	2099	2180	2260	2341	2422	2502	2583	4	41
86	2663	2744	2825	2905	2986	3067	3147	3228	3309	3389	5	49
87	3470	3550	3631	3712	3792	3873	3953	4034	4115	4195	6	57
88	4276	4356	4437	4518	4598	4679	4759	4840	4921	5001	7	65
89	5082	5162	5243	5324	5404	5485	5565	5646	5727	5807	8	73
5390	5888	5968	6049	6129	6210	6291	6371	6452	6532	6613		
91	6693	6774	6854	6935	7016	7096	7177	7257	7338	7419		
92	7499	7579	7660	7740	7821	7902	7982	8063	8143	8224		
93	8304	8385	8465	8546	8626	8707	8787	8868	8948	9029		
94	9109	9190	9270	9351	9431	9512	9592	9673	9753	9834		
95	9914	9995	0075	0156	0236	0317	0397	0478	0558	0639		
96	7320719	0800	0880	0961	1041	1122	1202	1283	1363	1444		
97	1524	1605	1685	1766	1846	1927	2007	2087	2168	2248		
98	2329	2409	2490	2570	2651	2731	2812	2892	2972	3053		
99	3133	3214	3294	3375	3455	3535	3616	3696	3777	3857		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

(96)

LOGARITHMS

N. 545 L. 736

N	0	1	2	3	4	5	6	7	8	9	D	Pro
5450	7363965	4045	4124	4204	4284	4363	4443	4523	4602	4682		
51	4762	4841	4921	5001	5080	5160	5240	5319	5399	5479		
52	5558	5638	5718	5797	5877	5957	6036	6116	6196	6275		
53	6355	6435	6514	6594	6674	6753	6833	6912	6992	7072		
54	7151	7231	7311	7390	7470	7549	7629	7709	7788	7868		
55	7948	8027	8107	8186	8266	8346	8425	8505	8584	8664		
56	8744	8823	8903	8982	9062	9142	9221	9301	9380	9460		
57	9540	9619	9699	9778	9858	9937	0017	0097	0176	0256		
58	7370335	0415	0494	0574	0654	0733	0813	0892	0972	1051		
59	1131	1210	1290	1370	1449	1529	1608	1688	1767	1847		
5460	1926	2006	2086	2165	2245	2324	2404	2483	2563	2642		
61	2722	2801	2881	2960	3040	3119	3199	3278	3358	3437		
62	3517	3596	3676	3755	3835	3914	3994	4074	4153	4233		
63	4312	4392	4471	4550	4630	4709	4789	4868	4948	5027		
64	5107	5186	5266	5345	5425	5504	5584	5663	5743	5822		
65	5902	5981	6061	6140	6220	6299	6378	6458	6537	6617		
66	6696	6776	6855	6935	7014	7094	7173	7252	7332	7411		
67	7491	7570	7650	7729	7808	7888	7967	8047	8126	8206		
68	8285	8364	8444	8523	8603	8682	8762	8841	8920	9000		
69	9079	9159	9238	9317	9397	9476	9556	9635	9714	9794		
5470	9873	9953	0032	0111	0191	0270	0350	0429	0508	0588		
71	7380667	0747	0826	0905	0985	1064	1143	1223	1302	1382		
72	1461	1540	1620	1699	1778	1858	1937	2016	2096	2175		
73	2254	2334	2413	2493	2572	2651	2731	2810	2889	2969		
74	3048	3127	3207	3286	3365	3445	3524	3603	3683	3762		
75	3841	3921	4000	4079	4159	4238	4317	4396	4476	4555		
76	4634	4714	4793	4872	4952	5031	5110	5190	5269	5348		
77	5427	5507	5586	5665	5745	5824	5903	5982	6062	6141		
78	6220	6300	6379	6458	6537	6617	6696	6775	6854	6934		
79	7013	7092	7172	7251	7330	7409	7489	7568	7647	7726		
5480	7806	7885	7964	8043	8123	8202	8281	8360	8440	8519		
81	8598	8677	8756	8836	8915	8994	9073	9153	9232	9311		
82	9390	9470	9549	9628	9707	9786	9866	9945	0024	0103		
83	7390182	0262	0341	0420	0499	0578	0658	0737	0816	0895		
84	0974	1054	1133	1212	1291	1370	1450	1529	1608	1687		
85	1766	1845	1925	2004	2083	2162	2241	2321	2400	2479		
86	2558	2637	2716	2796	2875	2954	3033	3112	3191	3270		
87	3350	3429	3508	3587	3666	3745	3824	3904	3983	4062		
88	4141	4220	4299	4378	4458	4537	4616	4695	4774	4853		
89	4932	5011	5091	5170	5249	5328	5407	5486	5565	5644		
5490	5723	5803	5882	5961	6040	6119	6198	6277	6356	6435		
91	6514	6594	6673	6752	6831	6910	6989	7068	7147	7226		
92	7305	7384	7463	7543	7622	7701	7780	7859	7938	8017		
93	8096	8175	8254	8333	8412	8491	8570	8649	8728	8808		
94	8887	8966	9045	9124	9203	9282	9361	9440	9519	9598		
95	9677	9756	9835	9914	9993	0072	0151	0230	0309	0388		
96	7400467	0546	0625	0704	0783	0862	0941	1020	1099	1178		
97	1257	1336	1415	1494	1573	1652	1731	1810	1889	1968		
98	2047	2126	2205	2284	2363	2442	2521	2600	2679	2758		
99	2837	2916	2995	3074	3153	3232	3311	3390	3469	3548		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

80

1	8
2	16
3	24
4	32
5	40
6	48
7	56
8	64
9	72

79

1	8
2	16
3	24
4	32
5	40
6	47
7	55
8	63
9	72

79

N	O	I	2	3	4	5	6	7	8	9	D	Pro
5500	7403627	3706	3785	3864	3943	4022	4101	4180	4259	4338		
01	4416	4495	4574	4653	4732	4811	4890	4969	5048	5127		
02	5206	5285	5364	5443	5522	5601	5679	5758	5837	5916		
03	5995	6074	6153	6232	6311	6390	6469	6548	6626	6705		
04	6784	6863	6942	7021	7100	7179	7258	7337	7415	7494		
05	7573	7652	7731	7810	7889	7968	8047	8125	8204	8283		
06	8362	8441	8520	8599	8678	8756	8835	8914	8993	9072		
07	9151	9230	9308	9387	9466	9545	9624	9703	9782	9860		
08	9939	0018	0097	0176	0255	0334	0412	0491	0570	0649		
09	7410728	0807	0885	0964	1043	1122	1201	1280	1358	1437		
5510	1516	1595	1674	1752	1831	1910	1989	2068	2146	2225		
11	2304	2383	2462	2541	2619	2698	2777	2856	2935	3013		79
12	3092	3171	3250	3328	3407	3486	3565	3644	3722	3801		1
13	3880	3959	4037	4116	4195	4274	4353	4431	4510	4589		2
14	4668	4746	4825	4904	4983	5061	5140	5219	5298	5376		3
15	5455	5534	5613	5691	5770	5849	5928	6006	6085	6164		4
16	6243	6321	6400	6479	6557	6636	6715	6794	6872	6951		5
17	7030	7109	7187	7266	7345	7423	7502	7581	7660	7738		6
18	7817	7896	7974	8053	8132	8210	8289	8368	8447	8525		7
19	8604	8683	8761	8840	8919	8997	9076	9155	9233	9312		8
5520	9391	9469	9548	9627	9705	9784	9863	9941	0020	0099		9
21	7420177	0256	0335	0413	0492	0571	0649	0728	0807	0885		
22	0964	1043	1121	1200	1279	1357	1436	1515	1593	1672		
23	1750	1829	1908	1986	2065	2144	2222	2301	2379	2458		
24	2537	2615	2694	2773	2851	2930	3008	3087	3166	3244		
25	3323	3401	3480	3559	3637	3716	3794	3873	3952	4030		
26	4109	4187	4266	4345	4423	4502	4580	4659	4737	4816		
27	4895	4973	5052	5130	5209	5288	5366	5445	5523	5602		
28	5680	5759	5837	5916	5995	6073	6152	6230	6309	6387		
29	6466	6544	6623	6702	6780	6859	6937	7016	7094	7173		
5530	7251	7330	7408	7487	7565	7644	7722	7801	7880	7958		
31	8037	8115	8194	8272	8351	8429	8508	8586	8665	8743		78
32	8822	8900	8979	9057	9136	9214	9293	9371	9450	9528		1
33	9607	9685	9764	9842	9921	9999	0078	0156	0235	0313		2
34	7430392	0470	0549	0627	0705	0784	0862	0941	1019	1098		3
35	1176	1255	1333	1412	1490	1569	1647	1725	1804	1882		4
36	1961	2039	2118	2196	2275	2353	2431	2510	2588	2667		5
37	2745	2824	2902	2981	3059	3137	3216	3294	3373	3451		6
38	3530	3608	3686	3765	3843	3922	4000	4078	4157	4235		7
39	4314	4392	4470	4549	4627	4706	4784	4862	4941	5019		8
5540	5098	5176	5254	5333	5411	5490	5568	5646	5725	5803		9
41	5882	5960	6038	6117	6195	6273	6352	6430	6508	6587		
42	6665	6744	6822	6900	6979	7057	7135	7214	7292	7370		
43	7449	7527	7605	7684	7762	7841	7919	7997	8076	8154		
44	8232	8311	8389	8467	8546	8624	8702	8781	8859	8937		
45	9016	9094	9172	9250	9329	9407	9485	9564	9642	9720		
46	9799	9877	9955	0034	0112	0190	0268	0347	0425	0503		
47	7440582	0660	0738	0817	0895	0973	1051	1130	1208	1286		
48	1365	1443	1521	1599	1678	1756	1834	1912	1991	2069		
49	2147	2226	2304	2382	2460	2539	2617	2695	2773	2852		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

(98)

LOGARITHMS

N. 555 L. 744

N	O	I	2	3	4	5	6	7	8	9	D	Pro
5550	7442930	3008	3086	3165	3243	3321	3399	3478	3556	3634		
51	3712	3791	3869	3947	4025	4103	4182	4260	4338	4416		
52	4495	4573	4651	4729	4807	4886	4964	5042	5120	5199		
53	5277	5355	5433	5511	5590	5668	5746	5824	5902	5981		
54	6059	6137	6215	6293	6372	6450	6528	6606	6684	6762		
55	6841	6919	6997	7075	7153	7232	7310	7388	7466	7544		
56	7622	7701	7779	7857	7935	8013	8091	8170	8248	8326		
57	8404	8482	8560	8638	8717	8795	8873	8951	9029	9107		
58	9185	9264	9342	9420	9498	9576	9654	9732	9810	9889		
59	9967	0045	0123	0201	0279	0357	0435	0514	0592	0670		
5560	7450748	0826	0904	0982	1060	1138	1217	1295	1373	1451		
61	1529	1607	1685	1763	1841	1919	1998	2076	2154	2232		
62	2310	2388	2466	2544	2622	2700	2778	2856	2934	3013		
63	3091	3169	3247	3325	3403	3481	3559	3637	3715	3793		
64	3871	3949	4027	4105	4183	4261	4340	4418	4496	4574		
65	4652	4730	4808	4886	4964	5042	5120	5198	5276	5354		
66	5432	5510	5588	5666	5744	5822	5900	5978	6056	6134		
67	6212	6290	6368	6446	6524	6602	6680	6758	6836	6914		
68	6992	7070	7148	7226	7304	7382	7460	7538	7616	7694		
69	7772	7850	7928	8006	8084	8162	8240	8318	8396	8474		
5570	8552	8630	8708	8786	8864	8942	9020	9098	9176	9254		
71	9332	9410	9487	9565	9643	9721	9799	9877	9955	0033		
72	7460111	0189	0267	0345	0423	0501	0579	0657	0735	0813		
73	0890	0968	1046	1124	1202	1280	1358	1436	1514	1592		
74	1670	1748	1825	1903	1981	2059	2137	2215	2293	2371		
75	2449	2527	2605	2682	2760	2838	2916	2994	3072	3150		
76	3228	3306	3383	3461	3539	3617	3695	3773	3851	3929		
77	4006	4084	4162	4240	4318	4396	4474	4552	4629	4707		
78	4785	4863	4941	5019	5097	5174	5252	5330	5408	5486		
79	5564	5641	5719	5797	5875	5953	6031	6108	6186	6264		
5580	6342	6420	6498	6575	6653	6731	6809	6887	6965	7042		
81	7120	7198	7276	7354	7431	7509	7587	7665	7743	7821		
82	7898	7976	8054	8132	8210	8287	8365	8443	8521	8598		
83	8676	8754	8832	8910	8987	9065	9143	9221	9299	9376		
84	9454	9532	9610	9687	9765	9843	9921	9998	0076	0154		
85	7470232	0310	0387	0465	0543	0621	0698	0776	0854	0932		
86	1009	1087	1165	1243	1320	1398	1476	1554	1631	1709		
87	1787	1864	1942	2020	2098	2175	2253	2331	2409	2486		
88	2564	2642	2719	2797	2875	2953	3030	3108	3186	3263		
89	3341	3419	3497	3574	3652	3730	3807	3885	3963	4040		
5590	4118	4196	4273	4351	4429	4507	4584	4662	4740	4817		
91	4895	4973	5050	5128	5206	5283	5361	5439	5516	5594		
92	5672	5749	5827	5905	5982	6060	6138	6215	6293	6371		
93	6448	6526	6603	6681	6759	6836	6914	6992	7069	7147		
94	7225	7302	7380	7458	7535	7613	7690	7768	7846	7923		
95	8001	8079	8156	8234	8311	8389	8467	8544	8622	8699		
96	8777	8855	8932	9010	9087	9165	9243	9320	9398	9475		
97	9553	9631	9708	9786	9863	9941	0019	0096	0174	0251		
98	7480329	0407	0484	0562	0639	0717	0794	0872	0950	1027		
99	1105	1182	1260	1337	1415	1492	1570	1648	1725	1803		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

79
1 8
2 16
3 23
4 32
5 40
6 47
7 55
8 63
9 71

78
1 8
2 16
3 23
4 31
5 39
6 47
7 55
8 62
9 70

N	O	I	2	3	4	5	6	7	8	9	D	Pro
5600	7481880	1958	2035	2113	2190	2268	2346	2423	2501	2578		
01	2656	2733	2811	2888	2966	3043	3121	3198	3276	3354		
02	3431	3509	3586	3664	3741	3819	3896	3974	4051	4129		
03	4206	4284	4361	4439	4516	4594	4671	4749	4826	4904		
04	4981	5059	5136	5214	5291	5369	5446	5524	5601	5679		
05	5756	5834	5911	5989	6066	6144	6221	6299	6376	6453		
06	6531	6608	6686	6763	6841	6918	6996	7073	7151	7228		
07	7306	7383	7460	7538	7615	7693	7770	7848	7925	8003		
08	8080	8157	8235	8312	8390	8467	8545	8622	8700	8777		
09	8854	8932	9009	9087	9164	9242	9319	9396	9474	9551		
5610	9629	9706	9783	9861	9938	0016	0093	0170	0248	0325		
11	7490403	0480	0557	0635	0712	0790	0867	0944	1022	1099		
12	1177	1254	1331	1409	1486	1564	1641	1718	1796	1873		
13	1950	2028	2105	2183	2260	2337	2415	2492	2569	2647		
14	2724	2801	2879	2956	3034	3111	3188	3266	3343	3420		
15	3498	3575	3652	3730	3807	3884	3962	4039	4116	4194		
16	4271	4348	4426	4503	4580	4658	4735	4812	4890	4967		
17	5044	5122	5199	5276	5353	5431	5508	5585	5663	5740		
18	5817	5895	5972	6049	6127	6204	6281	6358	6436	6513		
19	6590	6668	6745	6822	6899	6977	7054	7131	7209	7286		
5620	7363	7440	7518	7595	7672	7750	7827	7904	7981	8059		
21	8136	8213	8290	8368	8445	8522	8599	8677	8754	8831		
22	8908	8986	9063	9140	9217	9295	9372	9449	9526	9604		
23	9681	9758	9835	9913	9990	0067	0144	0221	0299	0376		
24	7500453	0530	0608	0685	0762	0839	0916	0994	1071	1148		
25	1225	1302	1380	1457	1534	1611	1688	1766	1843	1920		
26	1997	2074	2152	2229	2306	2383	2460	2538	2615	2692		
27	2769	2846	2924	3001	3078	3155	3232	3309	3387	3464		
28	3541	3618	3695	3772	3850	3927	4004	4081	4158	4235		
29	4312	4390	4467	4544	4621	4698	4775	4853	4930	5007		
5630	5084	5161	5238	5315	5392	5470	5547	5624	5701	5778		
31	5855	5932	6010	6087	6164	6241	6318	6395	6472	6549		
32	6626	6704	6781	6858	6935	7012	7089	7166	7243	7320		
33	7398	7475	7552	7629	7706	7783	7860	7937	8014	8091		
34	8168	8246	8323	8400	8477	8554	8631	8708	8785	8862		
35	8939	9016	9093	9170	9247	9325	9402	9479	9556	9633		
36	9710	9787	9864	9941	0018	0095	0172	0249	0326	0403		
37	7510480	0557	0634	0711	0789	0866	0943	1020	1097	1174		
38	1251	1328	1405	1482	1559	1636	1713	1790	1867	1944		
39	2021	2098	2175	2252	2329	2406	2483	2560	2637	2714		
5640	2791	2868	2945	3022	3099	3176	3253	3330	3407	3484		
41	3561	3638	3715	3792	3869	3946	4023	4100	4177	4254		
42	4331	4408	4485	4562	4639	4716	4793	4870	4947	5024		
43	5101	5177	5254	5331	5408	5485	5562	5639	5716	5793		
44	5870	5947	6024	6101	6178	6255	6332	6409	6486	6563		
45	6639	6716	6793	6870	6947	7024	7101	7178	7255	7332		
46	7409	7486	7563	7639	7716	7793	7870	7947	8024	8101		
47	8178	8255	8332	8409	8485	8562	8639	8716	8793	8870		
48	8947	9024	9101	9178	9254	9331	9408	9485	9562	9639		
49	9716	9793	9870	9946	0023	0100	0177	0254	0331	0408		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

78

1	8
2	16
3	23
4	31
5	39
6	47
7	55
8	62
9	70

77

1	8
2	15
3	23
4	31
5	39
6	46
7	54
8	62
9	69

77

(100)

LOGARITHMS

N. 565 L. 752

N	O	I	2	3	4	5	6	7	8	9	D	Pro
5650	7520484	0561	0638	0715	0792	0869	0946	1023	1099	1176		
51	1253	1330	1407	1484	1560	1637	1714	1791	1868	1945		
52	2022	2098	2175	2252	2329	2406	2483	2559	2636	2713		
53	2790	2867	2944	3020	3097	3174	3251	3328	3404	3481		
54	3558	3635	3712	3788	3865	3942	4019	4096	4172	4249		
55	4326	4403	4480	4556	4633	4710	4787	4864	4940	5017		
56	5094	5171	5248	5324	5401	5478	5555	5631	5708	5785		
57	5862	5939	6015	6092	6169	6246	6322	6399	6476	6553		
58	6629	6706	6783	6860	6936	7013	7090	7167	7243	7320		
59	7397	7474	7550	7627	7704	7781	7857	7934	8011	8088		
5660	8164	8241	8318	8394	8471	8548	8625	8701	8778	8855		
61	8932	9008	9085	9162	9238	9315	9392	9469	9545	9622		
62	9699	9775	9852	9929	0005	0082	0159	0236	0312	0389		
63	7530466	0542	0619	0696	0772	0849	0926	1002	1079	1156		
64	1232	1309	1386	1462	1539	1616	1692	1769	1846	1922		
65	1999	2076	2152	2229	2306	2382	2459	2536	2612	2689		
66	2766	2842	2919	2996	3072	3149	3226	3302	3379	3455		
67	3532	3609	3685	3762	3839	3915	3992	4069	4145	4222		
68	4298	4375	4452	4528	4605	4682	4758	4835	4911	4988		
69	5065	5141	5218	5294	5371	5448	5524	5601	5677	5754		
5670	5831	5907	5984	6060	6137	6214	6290	6367	6443	6520		
71	6596	6673	6750	6826	6903	6979	7056	7133	7209	7286		
72	7362	7439	7515	7592	7668	7745	7822	7898	7975	8051		
73	8128	8204	8281	8357	8434	8511	8587	8664	8740	8817		
74	8893	8970	9046	9123	9199	9276	9353	9429	9506	9582		
75	9659	9735	9812	9888	9965	0041	0118	0194	0271	0347		
76	7540424	0500	0577	0653	0730	0806	0883	0959	1036	1112		
77	1189	1265	1342	1418	1495	1571	1648	1724	1801	1877		
78	1954	2030	2107	2183	2260	2336	2413	2489	2566	2642		
79	2719	2795	2872	2948	3025	3101	3178	3254	3330	3407		
5680	3483	3560	3636	3713	3789	3866	3942	4019	4095	4171		
81	4248	4324	4401	4477	4554	4630	4707	4783	4859	4936		
82	5012	5089	5165	5242	5318	5394	5471	5547	5624	5700		
83	5777	5853	5929	6006	6082	6159	6235	6311	6388	6464		
84	6541	6617	6694	6770	6846	6923	6999	7076	7152	7228		
85	7305	7381	7457	7534	7610	7687	7763	7839	7916	7992		
86	8069	8145	8221	8298	8374	8450	8527	8603	8680	8756		
87	8832	8909	8985	9061	9138	9214	9290	9367	9443	9520		
88	9596	9672	9749	9825	9901	9978	0054	0130	0207	0283		
89	7550359	0436	0512	0588	0665	0741	0817	0894	0970	1046		
5690	1123	1199	1275	1352	1428	1504	1581	1657	1733	1810		
91	1886	1962	2038	2115	2191	2267	2344	2420	2496	2573		
92	2649	2725	2802	2878	2954	3030	3107	3183	3259	3336		
93	3412	3488	3564	3641	3717	3793	3870	3946	4022	4098		
94	4175	4251	4327	4403	4480	4556	4632	4709	4785	4861		
95	4937	5014	5090	5166	5242	5319	5395	5471	5547	5624		
96	5700	5776	5852	5929	6005	6081	6157	6233	6310	6386		
97	6462	6538	6615	6691	6767	6843	6920	6996	7072	7148		
98	7224	7301	7377	7453	7529	7606	7682	7758	7834	7910		
99	7987	8063	8139	8215	8291	8368	8444	8520	8596	8672		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

77

1	8
2	15
3	23
4	31
5	39
6	46
7	54
8	62
9	69

76

1	8
2	15
3	23
4	30
5	38
6	46
7	53
8	61
9	68

N	O	I	2	3	4	5	6	7	8	9	D	Pro
5700	7558749	8825	8901	8977	9053	9130	9206	9282	9358	9434		
01	9510	9587	9663	9739	9815	9891	9967	0044	0120	0196		
02	7560272	0348	0424	0501	0577	0653	0729	0805	0881	0958		
03	1034	1110	1186	1262	1338	1414	1491	1567	1643	1719		
04	1795	1871	1947	2024	2100	2176	2252	2328	2404	2480		
05	2556	2633	2709	2785	2861	2937	3013	3089	3165	3242		
06	3318	3394	3470	3546	3622	3698	3774	3850	3927	4003		
07	4079	4155	4231	4307	4383	4459	4535	4611	4687	4764		
08	4840	4916	4992	5068	5144	5220	5296	5372	5448	5524		
09	5600	5677	5753	5829	5905	5981	6057	6133	6209	6285		
5710	6361	6437	6513	6589	6665	6741	6817	6893	6970	7046		
11	7122	7198	7274	7350	7426	7502	7578	7654	7730	7806		
12	7882	7958	8034	8110	8186	8262	8338	8414	8490	8566		
13	8642	8718	8794	8870	8946	9022	9098	9174	9250	9326		
14	9402	9478	9554	9630	9706	9782	9858	9934	0010	0086		
15	7570162	0238	0314	0390	0466	0542	0618	0694	0770	0846		
16	0922	0998	1074	1150	1226	1302	1378	1454	1530	1606		
17	1682	1758	1834	1910	1986	2062	2138	2214	2290	2366		
18	2442	2517	2593	2669	2745	2821	2897	2973	3049	3125		
19	3201	3277	3353	3429	3505	3581	3657	3733	3808	3884		
5720	3960	4036	4112	4188	4264	4340	4416	4492	4568	4644		
21	4719	4795	4871	4947	5023	5099	5175	5251	5327	5403		
22	5479	5554	5630	5706	5782	5858	5934	6010	6086	6162		
23	6237	6313	6389	6465	6541	6617	6693	6769	6845	6920		
24	6996	7072	7148	7224	7300	7376	7451	7527	7603	7679		
25	7755	7831	7907	7982	8058	8134	8210	8286	8362	8438		
26	8513	8589	8665	8741	8817	8893	8968	9044	9120	9196		
27	9272	9348	9423	9499	9575	9651	9727	9803	9878	9954		
28	7580030	0106	0182	0258	0333	0409	0485	0561	0637	0712		
29	0788	0864	0940	1016	1091	1167	1243	1319	1395	1470		
5730	1546	1622	1698	1774	1849	1925	2001	2077	2153	2228		
31	2304	2380	2456	2531	2607	2683	2759	2835	2910	2986		
32	3062	3138	3213	3289	3365	3441	3516	3592	3668	3744		
33	3819	3895	3971	4047	4122	4198	4274	4350	4425	4501		
34	4577	4653	4728	4804	4880	4956	5031	5107	5183	5258		
35	5334	5410	5486	5561	5637	5713	5789	5864	5940	6016		
36	6091	6167	6243	6319	6394	6470	6546	6621	6697	6773		
37	6848	6924	7000	7076	7151	7227	7303	7378	7454	7530		
38	7605	7681	7757	7832	7908	7984	8060	8135	8211	8287		
39	8362	8438	8514	8589	8665	8741	8816	8892	8968	9043		
5740	9119	9195	9270	9346	9422	9497	9573	9649	9724	9800		
41	9875	9951	0027	0102	0178	0254	0329	0405	0481	0556		
42	7590632	0708	0783	0859	0934	1010	1086	1161	1237	1313		
43	1388	1464	1539	1615	1691	1766	1842	1917	1993	2069		
44	2144	2220	2296	2371	2447	2522	2598	2674	2749	2825		
45	2900	2976	3052	3127	3203	3278	3354	3429	3505	3581		
46	3656	3732	3807	3883	3959	4034	4110	4185	4261	4336		
47	4412	4488	4563	4639	4714	4790	4865	4941	5016	5092		
48	5168	5243	5319	5394	5470	5545	5621	5696	5772	5848		
49	5923	5999	6074	6150	6225	6301	6376	6452	6527	6603		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

76

1	8
2	15
3	23
4	30
5	38
6	46
7	53
8	61
9	68

76

75

1	8
2	15
3	23
4	30
5	38
6	45
7	53
8	60
9	68

(102)

LOGARITHMS

N. 575 L. 759

N	0	1	2	3	4	5	6	7	8	9	D	Pro
5750	7596678	6754	6830	6905	6981	7056	7132	7207	7283	7358		
51	7434	7509	7585	7660	7736	7811	7887	7962	8038	8113		
52	8189	8264	8340	8415	8491	8566	8642	8717	8793	8868		
53	8944	9019	9095	9170	9246	9321	9397	9472	9548	9623		
54	9699	9774	9850	9925	0000	0076	0151	0227	0302	0378		
55	7600453	0529	0604	0680	0755	0831	0906	0981	1057	1132		
56	1208	1283	1359	1434	1510	1585	1661	1736	1811	1887		
57	1962	2038	2113	2189	2264	2339	2415	2490	2566	2641		
58	2717	2792	2867	2943	3018	3094	3169	3245	3320	3395		
59	3471	3546	3622	3697	3772	3848	3923	3999	4074	4149		
5760	4225	4300	4376	4451	4526	4602	4677	4753	4828	4903		
61	4979	5054	5130	5205	5280	5356	5431	5506	5582	5657		
62	5733	5808	5883	5959	6034	6109	6185	6260	6336	6410		
63	6486	6562	6637	6712	6788	6863	6938	7014	7089	7164		
64	7240	7315	7390	7466	7541	7616	7692	7767	7842	7918		
65	7993	8068	8144	8219	8294	8370	8445	8520	8596	8671		
66	8746	8822	8897	8972	9048	9123	9198	9274	9349	9424		
67	9500	9575	9650	9725	9801	9876	9951	0027	0102	0177		
68	7610253	0328	0403	0478	0554	0629	0704	0780	0855	0930		
69	1005	1081	1156	1231	1307	1382	1457	1532	1608	1683		
5770	1758	1833	1909	1987	2059	2134	2210	2285	2360	2435		
71	2511	2586	2661	2737	2812	2887	2962	3037	3113	3188		
72	3263	3338	3414	3489	3564	3639	3715	3790	3865	3940		
73	4016	4091	4166	4241	4316	4392	4467	4542	4617	4693		
74	4768	4843	4918	4993	5069	5144	5219	5294	5369	5445		
75	5520	5595	5670	5745	5821	5896	5971	6046	6121	6197		
76	6272	6347	6422	6497	6573	6648	6723	6798	6873	6948		
77	7024	7099	7174	7249	7324	7400	7475	7550	7625	7700		
78	7775	7851	7926	8001	8076	8151	8226	8301	8377	8452		
79	8527	8602	8677	8752	8828	8903	8978	9053	9128	9203		
5780	9278	9354	9429	9504	9579	9654	9729	9804	9879	9955		
81	7620030	0105	0180	0255	0330	0405	0480	0556	0631	0706		
82	0781	0856	0931	1006	1081	1156	1232	1307	1382	1457		
83	1532	1607	1682	1757	1832	1907	1982	2058	2133	2208		
84	2283	2358	2433	2508	2583	2658	2733	2808	2883	2959		
85	3034	3109	3184	3259	3334	3409	3484	3559	3634	3709		
86	3784	3859	3934	4009	4085	4160	4235	4310	4385	4460		
87	4535	4610	4685	4760	4835	4910	4985	5060	5135	5210		
88	5285	5360	5435	5510	5585	5660	5735	5810	5885	5960		
89	6035	6111	6186	6261	6336	6411	6486	6561	6636	6711		
5790	6786	6861	6936	7011	7086	7161	7236	7311	7386	7461		
91	7536	7611	7686	7761	7836	7911	7986	8061	8136	8211		
92	8286	8361	8435	8510	8585	8660	8735	8810	8885	8960		
93	9035	9110	9185	9260	9335	9410	9485	9560	9635	9710		
94	9785	9860	9935	0010	0085	0160	0235	0310	0385	0459		
95	7630534	0609	0684	0759	0834	0909	0984	1059	1134	1209		
96	1284	1359	1434	1509	1583	1658	1733	1808	1883	1958		
97	2033	2108	2183	2258	2333	2408	2482	2557	2632	2707		
98	2782	2857	2932	3007	3082	3157	3232	3306	3381	3456		
99	3531	3606	3681	3756	3831	3906	3980	4055	4130	4205		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

76

1	8
2	15
3	23
4	30
5	38
6	46
7	53
8	61
9	68

75

1	7
2	15
3	23
4	30
5	38
6	45
7	53
8	60
9	68

75

N	O	I	2	3	4	5	6	7	8	9	D	Pro
5800	7634280	4355	4430	4505	4579	4654	4729	4804	4879	4954		
01	5029	5104	5178	5253	5328	5403	5478	5553	5628	5702		
02	5777	5852	5927	6002	6077	6151	6226	6301	6376	6451		
03	6526	6601	6675	6750	6825	6900	6975	7050	7124	7199		
04	7274	7349	7424	7499	7573	7648	7723	7798	7873	7947		
05	8022	8097	8172	8247	8321	8396	8471	8546	8621	8696		
06	8770	8845	8920	8995	9070	9144	9219	9294	9369	9443		
07	9518	9593	9668	9743	9817	9892	9967	0042	0117	0191		
08	7640266	0341	0416	0490	0565	0640	0715	0789	0864	0939		
09	1014	1089	1163	1238	1313	1388	1462	1537	1612	1687		
5810	1761	1836	1911	1986	2060	2135	2210	2285	2359	2434		
11	2509	2583	2658	2733	2808	2882	2957	3032	3107	3181		
12	3256	3331	3406	3480	3555	3630	3704	3779	3854	3929		
13	4003	4078	4153	4227	4302	4377	4451	4526	4601	4676		
14	4750	4825	4900	4974	5049	5124	5198	5273	5348	5423		
15	5497	5572	5647	5721	5796	5871	5945	6020	6095	6169		
16	6244	6319	6393	6468	6543	6617	6692	6767	6841	6916		
17	6991	7065	7140	7215	7289	7364	7439	7513	7588	7663		
18	7737	7812	7886	7961	8036	8110	8185	8260	8334	8409		
19	8484	8558	8633	8707	8782	8857	8931	9006	9081	9155		
5820	9230	9304	9379	9454	9528	9603	9678	9752	9827	9901		
21	9976	0051	0125	0200	0274	0349	0424	0498	0573	0647		
22	7650722	0797	0871	0946	1020	1095	1170	1244	1319	1393		
23	1468	1542	1617	1692	1766	1841	1915	1990	2065	2139		
24	2214	2288	2363	2437	2512	2586	2661	2736	2810	2885		
25	2959	3034	3108	3183	3258	3332	3407	3481	3556	3630		
26	3705	3779	3854	3928	4003	4078	4152	4227	4301	4376		
27	4450	4525	4599	4674	4748	4823	4897	4972	5046	5121		
28	5195	5270	5344	5419	5493	5568	5643	5717	5792	5866		
29	5941	6015	6090	6164	6239	6313	6388	6462	6537	6611		
5830	6686	6760	6835	6909	6984	7058	7132	7207	7281	7356		
31	7430	7505	7579	7654	7728	7803	7877	7952	8026	8101		
32	8175	8250	8324	8399	8473	8547	8622	8696	8771	8845		
33	8920	8994	9069	9143	9218	9292	9366	9441	9515	9590		
34	9664	9739	9813	9888	9962	0036	0111	0185	0260	0334		
35	7660409	0483	0557	0632	0706	0781	0855	0930	1004	1078		
36	1153	1227	1302	1376	1450	1525	1599	1674	1748	1823		
37	1897	1971	2046	2120	2195	2269	2343	2418	2492	2567		
38	2641	2715	2790	2864	2938	3013	3087	3162	3236	3310		
39	3385	3459	3534	3608	3682	3757	3831	3905	3980	4054		
5840	4128	4203	4277	4352	4426	4500	4575	4649	4723	4798		
41	4872	4946	5021	5095	5169	5244	5318	5393	5467	5541		
42	5616	5690	5764	5839	5913	5987	6062	6136	6210	6285		
43	6359	6433	6508	6582	6656	6730	6805	6879	6953	7028		
44	7102	7176	7251	7325	7399	7474	7548	7622	7697	7771		
45	7845	7919	7994	8068	8142	8217	8291	8365	8440	8514		
46	8588	8662	8737	8811	8885	8960	9034	9108	9182	9257		
47	9331	9405	9479	9554	9628	9702	9777	9851	9925	9999		
48	7670074	0148	0222	0296	0371	0445	0519	0593	0668	0742		
49	0816	0890	0965	1039	1113	1187	1262	1336	1410	1484		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

75
1 8
2 15
3 23
4 30
5 38
6 45
7 53
8 60
9 68

74
1 7
2 15
3 22
4 30
5 37
6 44
7 52
8 59
9 67

(104)

LOGARITHMS

N. 585 L. 767

N	0	1	2	3	4	5	6	7	8	9	D. Pro.
5850	7671	559	1633	1707	1781	1856	1930	2004	2078	2151	2227
51	2301	2375	2449	2524	2598	2672	2746	2821	2895	2969	
52	3043	3117	3192	3266	3340	3414	3488	3563	3637	3711	
53	3785	3859	3934	4008	4082	4156	4230	4305	4379	4453	
54	4527	4601	4676	4750	4824	4898	4972	5046	5121	5195	
55	5269	5343	5417	5492	5566	5640	5714	5788	5862	5937	
56	6011	6085	6159	6233	6307	6381	6455	6529	6603	6678	
57	6752	6826	6901	6975	7049	7123	7197	7271	7345	7420	
58	7494	7568	7642	7716	7790	7864	7938	8012	8086	8160	
59	8235	8309	8383	8457	8531	8605	8679	8753	8827	8901	
5800	8975	9050	9124	9198	9273	9347	9421	9495	9569	9643	
61	9717	9791	9865	9940	0014	0088	0162	0236	0310	0384	
62	7680	458	0532	0606	0680	0754	0828	0902	0976	1050	
63	1124	1273	1347	1421	1495	1569	1643	1717	1791	1865	
64	1940	2014	2088	2162	2236	2310	2384	2458	2532	2606	
65	2680	2754	2828	2902	2976	3050	3124	3198	3272	3346	
66	3421	3495	3569	3643	3717	3791	3865	3939	4013	4087	
67	4161	4235	4309	4383	4457	4531	4605	4679	4753	4827	
68	4901	4975	5049	5123	5197	5271	5345	5419	5493	5567	
69	5641	5715	5789	5863	5937	6011	6085	6159	6233	6307	
5870	6381	6455	6529	6603	6677	6751	6825	6899	6973	7047	
71	7121	7195	7269	7343	7417	7491	7565	7639	7713	7787	
72	7860	7934	8008	8082	8156	8230	8304	8378	8452	8526	
73	8600	8674	8748	8822	8896	8970	9044	9118	9192	9266	
74	9339	9413	9487	9561	9635	9709	9783	9857	9931	0005	
75	7690	0079	0153	0227	0300	0374	0448	0522	0596	0670	
76	0818	0892	0966	1040	1114	1187	1261	1335	1409	1483	
77	1557	1631	1705	1779	1852	1926	2000	2074	2148	2222	
78	2296	2370	2444	2517	2591	2665	2739	2813	2887	2961	
79	3035	3108	3182	3256	3330	3404	3478	3552	3626	3700	
5880	3773	3847	3921	3995	4069	4143	4217	4291	4365	4439	
81	4512	4586	4659	4733	4807	4881	4955	5029	5103	5177	
82	5250	5324	5398	5472	5546	5619	5693	5767	5841	5915	
83	5988	6062	6136	6210	6284	6358	6431	6505	6579	6653	
84	6727	6800	6874	6948	7022	7096	7169	7243	7317	7391	
85	7465	7538	7612	7686	7760	7834	7907	7981	8055	8129	
86	8203	8276	8350	8424	8498	8571	8645	8719	8793	8867	
87	8940	9014	9088	9162	9235	9309	9383	9457	9530	9604	
88	9678	9752	9826	9899	9973	0047	0121	0194	0268	0342	
89	7700	416	0489	0563	0637	0711	0784	0858	0932	1005	
5890	1153	1227	1300	1374	1448	1522	1595	1669	1743	1817	
91	1890	1964	2038	2111	2185	2259	2333	2406	2480	2554	
92	2627	2701	2775	2849	2922	2996	3070	3143	3217	3291	
93	3364	3438	3512	3585	3659	3733	3807	3880	3954	4028	
94	4101	4175	4249	4322	4396	4470	4543	4617	4691	4764	
95	4838	4912	4985	5059	5133	5206	5280	5354	5427	5501	
96	5575	5648	5722	5796	5869	5943	6017	6090	6164	6238	
97	6311	6385	6459	6532	6606	6679	6753	6827	6900	6974	
98	7048	7121	7195	7269	7342	7416	7489	7563	7637	7710	
99	7784	7858	7931	8005	8078	8152	8226	8299	8373	8447	
N	0	1	2	3	4	5	6	7	8	9	D. Pro.

75

74

N	0	1	2	3	4	5	6	7	8	9	D	Pro
5900	7708520	8594	8667	8741	8815	8888	8962	9035	9109	9183		
01	9256	9330	9403	9477	9551	9624	9698	9771	9845	9918		
02	9992	0066	0139	0213	0286	0360	0434	0507	0581	0654		
03	7710728	0801	0875	0949	1022	1096	1169	1243	1316	1390		
04	1463	1537	1611	1684	1758	1831	1905	1978	2052	2125		
05	2199	2273	2346	2420	2493	2567	2640	2714	2787	2861		
06	2934	3008	3081	3155	3229	3302	3376	3449	3523	3596		
07	3670	3743	3817	3890	3964	4037	4111	4184	4258	4331		
08	4405	4478	4552	4625	4699	4772	4846	4919	4993	5066		
09	5140	5213	5287	5360	5434	5507	5581	5654	5728	5801		
5910	5875	5948	6022	6095	6169	6242	6316	6389	6463	6536		
11	6610	6683	6757	6830	6903	6977	7050	7124	7197	7271		
12	7344	7418	7491	7565	7638	7712	7785	7858	7932	8005		
13	8079	8152	8226	8299	8373	8446	8519	8593	8666	8740		
14	8813	8887	8960	9034	9107	9180	9254	9327	9401	9474		
15	9547	9621	9694	9768	9841	9915	9988	0061	0135	0208		
16	7720282	0355	0428	0502	0575	0649	0722	0795	0869	0942		
17	1016	1089	1162	1236	1309	1383	1456	1529	1603	1676		
18	1750	1823	1896	1970	2043	2117	2190	2263	2337	2410		
19	2483	2557	2630	2704	2777	2850	2924	2997	3070	3144		
5920	3217	3290	3364	3437	3510	3584	3657	3731	3804	3877		
21	3951	4024	4097	4171	4244	4317	4391	4464	4537	4611		
22	4684	4757	4831	4904	4977	5051	5124	5197	5271	5344		
23	5417	5491	5564	5637	5711	5784	5857	5931	6004	6077		
24	6150	6224	6297	6370	6444	6517	6590	6664	6737	6810		
25	6884	6957	7030	7103	7177	7250	7323	7397	7470	7543		
26	7616	7690	7763	7836	7910	7983	8056	8129	8203	8276		
27	8349	8423	8496	8569	8642	8716	8789	8862	8935	9009		
28	9082	9155	9228	9302	9375	9448	9521	9595	9668	9741		
29	9815	9888	9961	0034	0107	0181	0254	0327	0400	0474		
5930	7730547	0620	0693	0767	0840	0913	0986	1060	1133	1206		
31	1279	1352	1426	1499	1572	1645	1719	1792	1865	1938		
32	2011	2085	2158	2231	2304	2377	2451	2524	2597	2670		
33	2743	2817	2890	2963	3036	3109	3183	3256	3329	3402		
34	3475	3549	3622	3695	3768	3841	3915	3988	4061	4134		
35	4207	4280	4354	4427	4500	4573	4646	4719	4793	4866		
36	4939	5012	5085	5158	5232	5305	5378	5451	5524	5597		
37	5670	5744	5817	5890	5963	6036	6109	6183	6256	6329		
38	6402	6475	6548	6621	6694	6768	6841	6914	6987	7060		
39	7133	7206	7280	7353	7426	7499	7572	7645	7718	7791		
5940	7864	7938	8011	8084	8157	8230	8303	8376	8449	8522		
41	8596	8669	8742	8815	8888	8961	9034	9107	9180	9253		
42	9326	9400	9473	9546	9619	9692	9765	9838	9911	9984		
43	7740057	0130	0203	0277	0350	0423	0496	0569	0642	0715		
44	0788	0861	0934	1007	1080	1153	1226	1299	1372	1446		
45	1519	1592	1665	1738	1811	1884	1957	2030	2103	2176		
46	2249	2322	2395	2468	2541	2614	2687	2760	2833	2906		
47	2979	3052	3125	3198	3271	3345	3418	3491	3564	3637		
48	3710	3783	3856	3929	4002	4075	4148	4221	4294	4367		
49	4440	4513	4586	4659	4732	4805	4878	4951	5024	5097		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

74

1	7
2	15
3	22
4	30
5	37
6	44
7	52
8	59
9	67

73

1	7
2	15
3	22
4	29
5	37
6	44
7	51
8	58
9	66

73

(106)

LOGARITHMS

N. 595 L. 774

N	O	I	2	3	4	5	6	7	8	9	D	Pro
5950	7745170	5243	5316	5389	5462	5535	5608	5681	5754	5827		
51	5900	5972	6045	6118	6191	6264	6337	6410	6483	6556		
52	6629	6702	6775	6848	6921	6994	7067	7140	7213	7286		
53	7359	7432	7505	7578	7651	7724	7797	7869	7942	8015		
54	8088	8161	8234	8307	8380	8453	8526	8599	8672	8745		
55	8818	8891	8964	9036	9109	9182	9255	9328	9401	9474		
56	9547	9620	9693	9766	9839	9911	9984	0057	0130	0203		
57	7750276	0349	0422	0495	0568	0641	0713	0786	0859	0932		
58	1005	1078	1151	1224	1297	1369	1442	1515	1588	1661		
59	1734	1807	1880	1952	2025	2098	2171	2244	2317	2390		
5960	2463	2535	2608	2681	2754	2827	2900	2973	3046	3118		
61	3191	3264	3337	3410	3483	3555	3628	3701	3774	3847		
62	3920	3993	4065	4138	4211	4284	4357	4430	4502	4575		
63	4648	4721	4794	4867	4939	5012	5085	5158	5231	5304		
64	5376	5449	5522	5595	5668	5740	5813	5886	5959	6032		
65	6104	6177	6250	6323	6396	6469	6541	6614	6687	6760		
66	6832	6905	6978	7051	7124	7196	7269	7342	7415	7488		
67	7560	7633	7706	7779	7851	7924	7997	8070	8143	8215		
68	8288	8361	8434	8506	8579	8652	8725	8798	8870	8943		
69	9016	9089	9161	9234	9307	9380	9452	9525	9598	9671		
5970	9743	9816	9889	9962	0034	0107	0180	0253	0325	0398		
71	7760471	0543	0616	0689	0762	0834	0907	0980	1053	1125		
72	1198	1271	1343	1416	1489	1562	1634	1707	1780	1852		
73	1925	1998	2071	2143	2216	2289	2361	2434	2507	2579		
74	2652	2725	2798	2870	2943	3016	3088	3161	3234	3306		
75	3379	3452	3524	3597	3670	3743	3815	3888	3961	4033		
76	4106	4179	4251	4324	4397	4469	4542	4615	4687	4760		
77	4833	4905	4978	5051	5123	5196	5269	5341	5414	5486		
78	5559	5632	5704	5777	5850	5922	5995	6068	6140	6213		
79	6286	6358	6431	6503	6576	6649	6721	6794	6867	6939		
5980	7012	7084	7157	7230	7302	7375	7448	7520	7593	7665		
81	7738	7811	7883	7956	8028	8101	8174	8246	8319	8391		
82	8464	8537	8609	8682	8754	8827	8900	8972	9045	9117		
83	9190	9263	9335	9408	9480	9553	9626	9698	9771	9843		
84	9916	9988	0061	0134	0206	0279	0351	0424	0496	0569		
85	7770642	0714	0787	0859	0932	1004	1077	1149	1222	1295		
86	1367	1440	1512	1585	1657	1730	1802	1875	1947	2020		
87	2093	2165	2238	2310	2383	2455	2528	2600	2673	2745		
88	2818	2890	2963	3035	3108	3181	3253	3326	3398	3471		
89	3543	3616	3688	3761	3833	3906	3978	4051	4123	4196		
5990	4268	4341	4413	4486	4558	4631	4703	4776	4848	4921		
91	4993	5066	5138	5211	5283	5356	5428	5501	5573	5646		
92	5718	5791	5863	5935	6008	6080	6153	6225	6298	6370		
93	6443	6515	6588	6660	6733	6805	6878	6950	7022	7095		
94	7167	7240	7312	7385	7457	7530	7602	7675	7747	7819		
95	7892	7964	8037	8109	8182	8254	8327	8399	8471	8544		
96	8616	8689	8761	8834	8906	8978	9051	9123	9196	9268		
97	9340	9413	9485	9558	9630	9703	9775	9847	9920	9992		
98	7780065	0137	0209	0282	0354	0427	0499	0571	0644	0716		
99	0789	0861	0933	1006	1078	1151	1223	1295	1368	1440		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

73

1	7
2	15
3	22
4	29
5	37
6	44
7	51
8	58
9	66

72

1	7
2	14
3	22
4	29
5	36
6	43
7	50
8	58
9	65

N	O	I	2	3	4	5	6	7	8	9	D	Pro
6000	7781513	1585	1657	1730	1802	1874	1947	2019	2092	2164		
01	2236	2309	2381	2453	2526	2598	2670	2743	2815	2888		
02	2960	3032	3105	3177	3249	3322	3394	3466	3539	3611		
03	3683	3756	3828	3900	3973	4045	4117	4190	4262	4335		
04	4407	4479	4552	4624	4696	4768	4841	4913	4985	5058		
05	5130	5202	5275	5347	5419	5492	5564	5636	5709	5781		
06	5853	5926	5998	6070	6143	6215	6287	6359	6432	6504		
07	6576	6649	6721	6793	6866	6938	7010	7082	7155	7227		
08	7299	7372	7444	7516	7588	7661	7733	7805	7877	7950		
09	8022	8094	8167	8239	8311	8383	8456	8528	8600	8672		
6010	8745	8817	8889	8962	9034	9106	9178	9251	9323	9395		72
11	9467	9540	9612	9684	9756	9829	9901	9973	0045	0117		1 7
12	7790190	0262	0334	0406	0479	0551	0623	0695	0768	0840		2 14
13	0912	0984	1056	1129	1201	1273	1345	1418	1490	1562		3 22
14	1634	1706	1779	1851	1923	1995	2067	2140	2212	2284		4 29
15	2356	2429	2501	2573	2645	2717	2790	2862	2934	3006		5 36
16	3078	3150	3223	3295	3367	3439	3511	3584	3656	3728		6 43
17	3800	3872	3944	4017	4089	4161	4233	4305	4377	4450		7 50
18	4522	4594	4666	4738	4810	4883	4955	5027	5099	5171		8 58
19	5243	5316	5388	5460	5532	5604	5676	5748	5821	5893		9 65
6020	5965	6037	6109	6181	6253	6326	6398	6470	6542	6614		
21	6686	6758	6831	6903	6975	7047	7119	7191	7263	7335		
22	7408	7480	7552	7624	7696	7768	7840	7912	7984	8057		
23	8129	8201	8273	8345	8417	8489	8561	8633	8705	8778		
24	8850	8922	8994	9066	9138	9210	9282	9354	9426	9498		
25	9571	9643	9715	9787	9859	9931	0003	0075	0147	0219		
26	7800291	0363	0435	0507	0580	0652	0724	0796	0868	0940		
27	1012	1084	1156	1228	1300	1372	1444	1516	1588	1660		
28	1732	1804	1877	1949	2021	2093	2165	2237	2309	2381		
29	2453	2525	2597	2669	2741	2813	2885	2957	3029	3101		
6030	3173	3245	3317	3389	3461	3533	3605	3677	3749	3821		71
31	3893	3965	4037	4109	4181	4253	4325	4397	4469	4541		1 7
32	4613	4685	4757	4829	4901	4973	5045	5117	5189	5261		2 14
33	5333	5405	5477	5549	5621	5693	5765	5837	5909	5981		3 21
34	6053	6125	6197	6269	6341	6413	6485	6557	6629	6701		4 28
35	6773	6845	6917	6989	7061	7133	7204	7276	7348	7420		5 36
36	7492	7564	7636	7708	7780	7852	7924	7996	8068	8140		6 43
37	8212	8284	8356	8428	8500	8571	8643	8715	8787	8859		7 50
38	8931	9003	9075	9147	9219	9291	9363	9435	9506	9578		8 57
39	9650	9722	9794	9866	9938	0010	0082	0154	0226	0297		9 64
6040	7810369	0441	0513	0585	0657	0729	0801	0873	0945	1016		
41	1088	1160	1232	1304	1376	1448	1520	1592	1663	1735		
42	1807	1879	1951	2023	2095	2167	2238	2310	2382	2454		
43	2526	2598	2670	2742	2813	2885	2957	3029	3101	3173		
44	3245	3316	3388	3460	3532	3604	3676	3748	3819	3891		
45	3963	4035	4107	4179	4250	4322	4394	4466	4538	4610		
46	4681	4753	4825	4897	4969	5041	5112	5184	5256	5328		
47	5400	5472	5543	5615	5687	5759	5831	5902	5974	6046		
48	6118	6190	6261	6333	6405	6477	6549	6620	6692	6764		
49	6836	6908	6979	7051	7123	7195	7267	7338	7410	7482		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

(108)

LOGARITHMS

N. 605 L. 781

N	0	1	2	3	4	5	6	7	8	9	D	Pro
6050	7817554	7626	7697	7769	7841	7913	7984	8056	8128	8200		
51	8272	8343	8415	8487	8559	8630	8702	8774	8846	8917		
52	8989	9061	9133	9204	9276	9348	9420	9491	9563	9635		
53	9707	9778	9850	9922	9994	0065	0137	0209	0281	0352		
54	7820424	0496	0568	0639	0711	0783	0855	0926	0998	1070		
55	1141	1213	1285	1357	1428	1500	1572	1644	1715	1787		
56	1859	1930	2002	2074	2146	2217	2289	2361	2432	2504		
57	2576	2647	2719	2791	2863	2934	3006	3078	3149	3221		
58	3293	3364	3436	3508	3579	3651	3723	3794	3866	3938		
59	4010	4081	4153	4225	4296	4368	4440	4511	4583	4655		
6060	4726	4798	4870	4941	5013	5085	5156	5228	5300	5371		
61	5443	5514	5586	5658	5729	5801	5873	5944	6016	6088		
62	6159	6231	6303	6374	6446	6518	6589	6661	6732	6804		
63	6876	6947	7019	7091	7162	7234	7305	7377	7449	7520		
64	7592	7664	7735	7807	7878	7950	8022	8093	8165	8236		
65	8308	8380	8451	8523	8594	8666	8738	8809	8881	8952		
66	9024	9096	9167	9239	9310	9382	9454	9525	9597	9668		
67	9740	9812	9883	9955	0026	0098	0169	0241	0313	0384		
68	7830456	0527	0599	0670	0742	0814	0885	0957	1028	1100		
69	1171	1243	1314	1386	1458	1529	1601	1672	1744	1815		
6070	1887	1958	2030	2102	2173	2245	2316	2388	2459	2531		
71	2602	2674	2745	2817	2888	2960	3032	3103	3175	3246		
72	3318	3389	3461	3532	3604	3675	3747	3818	3890	3961		
73	4033	4104	4176	4247	4319	4390	4462	4533	4605	4676		
74	4748	4819	4891	4962	5034	5105	5177	5248	5320	5391		
75	5463	5534	5606	5677	5749	5820	5892	5963	6035	6106		
76	6178	6249	6321	6392	6464	6535	6606	6678	6749	6821		
77	6892	6964	7035	7107	7178	7250	7321	7393	7464	7536		
78	7607	7678	7750	7821	7893	7964	8036	8107	8179	8250		
79	8321	8393	8464	8536	8607	8679	8750	8821	8893	8964		
6080	9036	9107	9179	9250	9322	9393	9464	9536	9607	9679		
81	9750	9821	9893	9964	0036	0107	0179	0250	0321	0393		
82	7840464	0536	0607	0678	0750	0821	0893	0964	1035	1107		
83	1178	1250	1321	1392	1464	1535	1607	1678	1749	1821		
84	1892	1963	2035	2106	2178	2249	2320	2392	2463	2534		
85	2606	2677	2749	2820	2891	2963	3034	3105	3177	3248		
86	3319	3391	3462	3534	3605	3676	3748	3819	3890	3962		
87	4033	4104	4176	4247	4318	4390	4461	4532	4604	4675		
88	4746	4818	4889	4960	5032	5103	5174	5246	5317	5388		
89	5460	5531	5602	5674	5745	5816	5888	5959	6030	6102		
6090	6173	6244	6316	6387	6458	6529	6601	6672	6743	6815		
91	6886	6957	7029	7100	7171	7242	7314	7385	7456	7528		
92	7599	7670	7742	7813	7884	7955	8027	8098	8169	8241		
93	8312	8383	8454	8526	8597	8668	8739	8811	8882	8953		
94	9024	9096	9167	9238	9310	9381	9452	9523	9595	9666		
95	9737	9808	9880	9951	0022	0093	0165	0236	0307	0378		
96	7850450	0521	0592	0663	0735	0806	0877	0948	1019	1091		
97	1162	1233	1304	1376	1447	1518	1589	1661	1732	1803		
98	1874	1945	2017	2088	2159	2230	2301	2373	2444	2515		
99	2586	2658	2729	2800	2871	2942	3014	3085	3156	3227		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

72

1	7
2	14
3	22
4	29
5	36
6	43
7	50
8	58
9	65

71

1	7
2	14
3	21
4	28
5	36
6	43
7	50
8	57
9	64

N	O	I	2	3	4	5	6	7	8	9	D	Pro
6100	7853298	3370	3441	3512	3583	3654	3726	3797	3868	3939		
01	4010	4081	4153	4224	4295	4366	4437	4509	4580	4651		
02	4722	4793	4864	4936	5007	5078	5149	5220	5291	5363		
03	5434	5505	5576	5647	5718	5789	5861	5932	6003	6074		
04	6145	6216	6288	6359	6430	6501	6572	6643	6714	6786		
05	6857	6928	6999	7070	7141	7212	7283	7355	7426	7497		
06	7568	7639	7710	7781	7852	7924	7995	8066	8137	8208		
07	8279	8350	8421	8493	8564	8635	8706	8777	8848	8919		
08	8990	9061	9132	9204	9275	9346	9417	9488	9559	9630		
09	9701	9772	9843	9915	9986	0057	0128	0199	0270	0341		
6110	7860412	0483	0554	0625	0696	0767	0839	0910	0981	1052		
11	1123	1194	1265	1336	1407	1478	1549	1620	1691	1762		
12	1833	1905	1976	2047	2118	2189	2260	2331	2402	2473		
13	2544	2615	2686	2757	2828	2899	2970	3041	3112	3183		
14	3254	3325	3396	3467	3538	3609	3681	3752	3823	3894		
15	3965	4036	4107	4178	4249	4320	4391	4462	4533	4604		
16	4675	4746	4817	4888	4959	5030	5101	5172	5243	5314		
17	5385	5456	5527	5598	5669	5740	5811	5882	5953	6024		
18	6095	6166	6237	6308	6379	6450	6521	6592	6663	6734		
19	6805	6876	6946	7017	7088	7159	7230	7301	7372	7443		
6120	7514	7585	7656	7727	7798	7869	7940	8011	8082	8153		
21	8224	8295	8366	8437	8508	8579	8649	8720	8791	8862		
22	8933	9004	9075	9146	9217	9288	9359	9430	9501	9572		
23	9643	9714	9784	9855	9926	9997	0068	0139	0210	0281		
24	7870352	0423	0494	0565	0635	0706	0777	0848	0919	0990		
25	1061	1132	1203	1274	1345	1415	1486	1557	1628	1699		
26	1770	1841	1912	1983	2053	2124	2195	2266	2337	2408		
27	2479	2550	2621	2691	2762	2833	2904	2975	3046	3117		
28	3188	3258	3329	3400	3471	3542	3613	3684	3754	3825		
29	3896	3967	4038	4109	4180	4250	4321	4392	4463	4534		
6130	4605	4676	4746	4817	4888	4959	5030	5101	5171	5242		
31	5313	5384	5455	5526	5596	5667	5738	5809	5880	5951		
32	6021	6092	6163	6234	6305	6376	6446	6517	6588	6659		
33	6730	6800	6871	6942	7013	7084	7155	7225	7296	7367		
34	7438	7509	7579	7650	7721	7792	7863	7933	8004	8075		
35	8146	8216	8287	8358	8429	8500	8570	8641	8712	8783		
36	8854	8924	8995	9066	9137	9207	9278	9349	9420	9490		
37	9561	9632	9703	9774	9844	9915	9986	0057	0127	0198		
38	7880269	0340	0410	0481	0552	0623	0693	0764	0835	0906		
39	0976	1047	1118	1189	1259	1330	1401	1472	1542	1613		
6140	1684	1754	1825	1896	1967	2037	2108	2179	2250	2320		
41	2391	2462	2532	2603	2674	2745	2815	2886	2957	3027		
42	3098	3169	3240	3310	3381	3452	3522	3593	3664	3734		
43	3805	3876	3947	4017	4088	4159	4229	4300	4371	4441		
44	4512	4583	4653	4724	4795	4865	4936	5007	5078	5148		
45	5219	5290	5360	5431	5502	5572	5643	5714	5784	5855		
46	5926	5996	6067	6138	6208	6279	6350	6420	6491	6561		
47	6632	6703	6773	6844	6915	6985	7056	7127	7197	7268		
48	7339	7409	7480	7551	7621	7692	7762	7833	7904	7974		
49	8045	8116	8186	8257	8327	8398	8469	8539	8610	8681		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

71

1	7
2	14
3	21
4	28
5	36
6	43
7	50
8	57
9	64

71

70

1	7
2	14
3	21
4	28
5	35
6	42
7	49
8	56
9	63

(110)

*LOGARITHMS

N. 615 L. 788

N	0	1	2	3	4	5	6	7	8	9	D	Pro
6150	7888751	8822	8892	8963	9034	9104	9175	9245	9316	9387		
51	9457	9528	9598	9669	9740	9810	9881	9951	0022	0093		
52	7890163	0234	0304	0375	0446	0516	0587	0657	0728	0799		
53	0869	0940	1010	1081	1151	1222	1293	1363	1434	1504		
54	1575	1645	1716	1787	1857	1928	1998	2069	2139	2210		
55	2281	2351	2422	2492	2563	2633	2704	2774	2845	2916		
56	2986	3057	3127	3198	3268	3339	3409	3480	3550	3621		
57	3692	3762	3833	3903	3974	4044	4115	4185	4256	4326		
58	4397	4467	4538	4608	4679	4749	4820	4890	4961	5032		
59	5102	5173	5243	5314	5384	5455	5525	5596	5666	5737		
6160	5807	5878	5948	6019	6089	6160	6230	6301	6371	6442		
61	6512	6583	6653	6724	6794	6865	6935	7005	7076	7146		
62	7217	7287	7358	7428	7499	7569	7640	7710	7781	7851		
63	7922	7992	8063	8133	8204	8274	8344	8415	8485	8556		
64	8626	8697	8767	8838	8908	8979	9049	9119	9190	9260		
65	9331	9401	9472	9542	9613	9683	9753	9824	9894	9965		
66	7900035	0106	0176	0247	0317	0387	0458	0528	0599	0669		
67	0739	0810	0880	0951	1021	1092	1162	1232	1303	1373		
68	1444	1514	1584	1655	1725	1796	1866	1936	2007	2077		
69	2148	2218	2288	2359	2429	2500	2570	2640	2711	2781		
6170	2852	2922	2992	3063	3133	3204	3274	3344	3415	3485		
71	3555	3626	3696	3767	3837	3907	3978	4048	4118	4189		
72	4259	4330	4400	4470	4541	4611	4681	4752	4822	4892		
73	4963	5033	5103	5174	5244	5315	5385	5455	5526	5596		
74	5666	5737	5807	5877	5948	6018	6088	6159	6229	6299		
75	6370	6440	6510	6581	6651	6721	6792	6862	6932	7003		
76	7073	7143	7214	7284	7354	7424	7495	7565	7635	7706		
77	7776	7846	7917	7987	8057	8128	8198	8268	8338	8409		
78	8479	8549	8620	8690	8760	8831	8901	8971	9041	9112		
79	9182	9252	9323	9393	9463	9533	9604	9674	9744	9814		
6180	9885	9955	0025	0096	0166	0236	0306	0377	0447	0517		
81	7910587	0658	0728	0798	0868	0939	1009	1079	1150	1220		
82	1290	1360	1431	1501	1571	1641	1711	1782	1852	1922		
83	1992	2063	2133	2203	2273	2344	2414	2484	2554	2625		
84	2695	2765	2835	2905	2976	3046	3116	3186	3257	3327		
85	3397	3467	3537	3608	3678	3748	3818	3889	3959	4029		
86	4099	4169	4240	4310	4380	4450	4520	4591	4661	4731		
87	4801	4871	4942	5012	5082	5152	5222	5292	5363	5433		
88	5503	5573	5643	5714	5784	5854	5924	5994	6064	6135		
89	6205	6275	6345	6415	6486	6556	6626	6696	6766	6836		
6190	6906	6977	7047	7117	7187	7257	7327	7398	7468	7538		
91	7608	7678	7748	7818	7889	7959	8029	8099	8169	8239		
92	8309	8380	8450	8520	8590	8660	8730	8800	8871	8941		
93	9011	9081	9151	9221	9291	9361	9432	9502	9572	9642		
94	9712	9782	9852	9922	9992	0063	0133	0203	0273	0343		
95	7920413	0483	0553	0623	0694	0764	0834	0904	0974	1044		
96	1114	1184	1254	1324	1394	1465	1535	1605	1675	1745		
97	1815	1885	1955	2025	2095	2165	2235	2306	2376	2446		
98	2516	2586	2656	2726	2796	2866	2936	3006	3076	3146		
99	3216	3286	3356	3427	3497	3567	3637	3707	3777	3847		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

71	7
1	14
2	21
3	28
4	36
5	43
6	50
7	57
8	64

70	7
1	14
2	21
3	28
4	35
5	42
6	49
7	56
8	63

N	O	I	2	3	4	5	6	7	8	9	D	Pro
6200	7923917	3987	4057	4127	4197	4267	4337	4407	4477	4547	70	
01	4617	4687	4757	4827	4897	4967	5038	5108	5178	5248		
02	5318	5388	5458	5528	5598	5668	5738	5808	5878	5948		
03	6018	6088	6158	6228	6298	6368	6438	6508	6578	6648		
04	6718	6788	6858	6928	6998	7068	7138	7208	7278	7348		
05	7418	7488	7558	7628	7698	7768	7838	7908	7978	8048		
06	8118	8188	8258	8328	8398	8468	8538	8608	8678	8747		
07	8817	8887	8957	9027	9097	9167	9237	9307	9377	9447		
08	9517	9587	9657	9727	9797	9867	9937	0007	0077	0147		
09	7930217	0287	0356	0426	0496	0566	0636	0706	0776	0846		
6210	0916	0986	1056	1126	1196	1266	1336	1406	1475	1545	70	
11	1615	1685	1755	1825	1895	1965	2035	2105	2175	2245		
12	2314	2384	2454	2524	2594	2664	2734	2804	2874	2944		
13	3014	3083	3153	3223	3293	3363	3433	3503	3573	3643		
14	3712	3782	3852	3922	3992	4062	4132	4202	4272	4341		
15	4411	4481	4551	4621	4691	4761	4831	4900	4970	5040		
16	5110	5180	5250	5320	5390	5459	5529	5599	5669	5739		
17	5809	5879	5948	6018	6088	6158	6228	6298	6367	6437		
18	6507	6577	6647	6717	6787	6856	6926	6996	7066	7136		
19	7206	7275	7345	7415	7485	7555	7625	7694	7764	7834		
6220	7904	7974	8043	8113	8183	8253	8323	8393	8462	8532	70	
21	8602	8672	8742	8811	8881	8951	9021	9091	9160	9230		
22	9300	9370	9440	9509	9579	9649	9719	9789	9858	9928		
23	9998	0068	0138	0207	0277	0347	0417	0487	0556	0626		
24	7940696	0766	0835	0905	0975	1045	1114	1184	1254	1324		
25	1394	1463	1533	1603	1673	1742	1812	1882	1952	2021		
26	2091	2161	2231	2300	2370	2440	2510	2579	2649	2719		
27	2789	2858	2928	2998	3068	3137	3207	3277	3347	3416		
28	3486	3556	3626	3695	3765	3835	3904	3974	4044	4114		
29	4183	4253	4323	4392	4462	4532	4602	4671	4741	4811		
6230	4880	4950	5020	5090	5159	5229	5299	5368	5438	5508	69	
31	5578	5647	5717	5787	5856	5926	5996	6065	6135	6205		
32	6274	6344	6414	6484	6553	6623	6693	6762	6832	6902		
33	6971	7041	7111	7180	7250	7320	7389	7459	7529	7598		
34	7668	7738	7807	7877	7947	8016	8086	8156	8225	8295		
35	8365	8434	8504	8574	8643	8713	8782	8852	8922	8991		
36	9061	9131	9200	9270	9340	9409	9479	9549	9618	9688		
37	9757	9827	9897	9966	0036	0106	0175	0245	0314	0384		
38	7950454	0523	0593	0663	0732	0802	0871	0941	1011	1080		
39	1150	1219	1289	1359	1428	1498	1567	1637	1707	1776		
6240	1846	1915	1985	2055	2124	2194	2263	2333	2403	2472	69	
41	2542	2611	2681	2751	2820	2890	2959	3029	3098	3168		
42	3238	3307	3377	3446	3516	3586	3655	3725	3794	3864		
43	3933	4003	4072	4142	4212	4281	4351	4420	4490	4559		
44	4629	4698	4768	4838	4907	4977	5046	5116	5185	5255		
45	5324	5394	5464	5533	5603	5672	5742	5811	5881	5950		
46	6020	6089	6159	6228	6298	6367	6437	6506	6576	6646		
47	6715	6785	6854	6924	6993	7063	7132	7202	7271	7341		
48	7410	7480	7549	7619	7688	7758	7827	7897	7966	8036		
49	8105	8175	8244	8314	8383	8453	8522	8592	8661	8731		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

(112)

LOGARITHMS

N. 625 L. 795

N	O	1	2	3	4	5	6	7	8	9	D	Pro
6250	7958800	8870	8939	9009	9078	9148	9217	9287	9356	9426		
51	9495	9564	9634	9703	9773	9842	9912	9981	0051	0120		
52	7960190	0259	0329	0398	0468	0537	0606	0676	0745	0815		
53	0884	0954	1023	1093	1162	1232	1301	1370	1440	1509		
54	1579	1648	1718	1787	1857	1926	1995	2065	2134	2204		
55	2273	2343	2412	2481	2551	2620	2690	2759	2829	2898		
56	2967	3037	3106	3176	3245	3314	3384	3453	3523	3592		
57	3662	3731	3800	3870	3939	4009	4078	4147	4217	4286		
58	4356	4425	4494	4564	4633	4703	4772	4841	4911	4980		
59	5050	5119	5188	5258	5327	5396	5466	5535	5605	5674		
6260	5743	5813	5882	5951	6021	6090	6160	6229	6298	6368		
61	6437	6506	6576	6645	6714	6784	6853	6923	6992	7061		
62	7131	7200	7269	7339	7408	7477	7547	7616	7685	7755		
63	7824	7893	7963	8032	8101	8171	8240	8309	8379	8448		
64	8517	8587	8656	8725	8795	8864	8933	9003	9072	9141		
65	9211	9280	9349	9419	9488	9557	9627	9696	9765	9835		
66	9904	9973	0043	0112	0181	0250	0320	0389	0458	0528		
67	7970597	0666	0736	0805	0874	0943	1013	1082	1151	1221		
68	1290	1359	1428	1498	1567	1636	1706	1775	1844	1913		
69	1983	2052	2121	2191	2260	2329	2398	2468	2537	2606		
6270	2675	2745	2814	2883	2952	3022	3091	3160	3229	3299		
71	3368	3437	3507	3576	3645	3714	3784	3853	3922	3991		
72	4060	4130	4199	4268	4337	4407	4476	4545	4614	4684		
73	4753	4822	4891	4961	5030	5099	5168	5237	5307	5376		
74	5445	5514	5584	5653	5722	5791	5860	5930	5999	6068		
75	6137	6207	6276	6345	6414	6483	6553	6622	6691	6760		
76	6829	6899	6968	7037	7106	7175	7245	7314	7383	7452		
77	7521	7590	7660	7729	7798	7867	7936	8006	8075	8144		
78	8213	8282	8351	8421	8490	8559	8628	8697	8766	8836		
79	8905	8974	9043	9112	9181	9251	9320	9389	9458	9527		
6280	9596	9666	9735	9804	9873	9942	0011	0080	0150	0219		
81	7980288	0357	0426	0495	0565	0634	0703	0772	0841	0910		
82	0979	1048	1118	1187	1256	1325	1394	1463	1532	1601		
83	1671	1740	1809	1878	1947	2016	2085	2154	2224	2293		
84	2362	2431	2500	2569	2638	2707	2776	2846	2915	2984		
85	3053	3122	3191	3260	3329	3398	3467	3536	3606	3675		
86	3744	3813	3882	3951	4020	4089	4158	4227	4296	4366		
87	4435	4504	4573	4642	4711	4780	4849	4918	4987	5056		
88	5125	5194	5263	5333	5402	5471	5540	5609	5678	5747		
89	5816	5885	5954	6023	6092	6161	6230	6299	6368	6437		
6290	6506	6575	6645	6714	6783	6852	6921	6990	7059	7128		
91	7197	7266	7335	7404	7473	7542	7611	7680	7749	7818		
92	7887	7956	8025	8094	8163	8232	8301	8370	8439	8508		
93	8577	8646	8715	8784	8853	8922	8991	9060	9129	9198		
94	9267	9336	9405	9474	9543	9612	9681	9750	9819	9888		
95	9957	0026	0095	0164	0233	0302	0371	0440	0509	0578		
96	7990647	0716	0785	0854	0923	0992	1061	1130	1199	1268		
97	1337	1406	1475	1544	1613	1682	1751	1820	1889	1958		
98	2027	2096	2164	2233	2302	2371	2440	2509	2578	2647		
99	2716	2785	2854	2923	2992	3061	3130	3199	3268	3337		
N	O	1	2	3	4	5	6	7	8	9	D	Pts

70
1 7
2 14
3 21
4 28
5 35
6 42
7 49
8 56
9 63

69
1 7
2 14
3 21
4 28
5 35
6 41
7 48
8 55
9 62

69

N	O	I	2	3	4	5	6	7	8	9	D	Pro
6300	7993405	3474	3543	3612	3681	3750	3819	3888	3957	4026		
01	4095	4164	4233	4302	4370	4439	4508	4577	4646	4715		
02	4784	4853	4922	4991	5060	5129	5197	5266	5335	5404		
03	5473	5542	5611	5680	5749	5818	5886	5955	6024	6093		
04	6162	6231	6300	6369	6438	6506	6575	6644	6713	6782		
05	6851	6920	6989	7058	7126	7195	7264	7333	7402	7471		
06	7540	7609	7677	7746	7815	7884	7953	8022	8091	8159		
07	8228	8297	8366	8435	8504	8573	8641	8710	8779	8848		
08	8917	8986	9055	9123	9192	9261	9330	9399	9468	9536		
09	9605	9674	9743	9812	9881	9949	0018	0087	0156	0225		
6310	8000294	0362	0431	0500	0569	0638	0707	0775	0844	0913		
11	0982	1051	1119	1188	1257	1326	1395	1463	1532	1601		
12	1670	1739	1808	1876	1945	2014	2083	2152	2220	2289		
13	2358	2427	2495	2564	2633	2702	2771	2839	2908	2977		
14	3046	3115	3183	3252	3321	3390	3458	3527	3596	3665		
15	3734	3802	3871	3940	4009	4077	4146	4215	4284	4352		
16	4421	4490	4559	4627	4696	4765	4834	4903	4971	5040		
17	5109	5178	5246	5315	5384	5453	5521	5590	5659	5727		
18	5796	5865	5934	6002	6071	6140	6209	6277	6346	6415		
19	6484	6552	6621	6690	6758	6827	6896	6965	7033	7102		
6320	7171	7239	7308	7377	7446	7514	7583	7652	7720	7789		
21	7858	7927	7995	8064	8133	8201	8270	8339	8408	8476		
22	8545	8614	8682	8751	8820	8888	8957	9026	9094	9163		
23	9232	9301	9369	9438	9507	9575	9644	9713	9781	9850		
24	9919	9987	0056	0125	0193	0262	0331	0399	0468	0537		
25	8010605	0674	0743	0811	0880	0949	1017	1086	1155	1223		
26	1292	1361	1429	1498	1566	1635	1704	1772	1841	1910		
27	1978	2047	2116	2184	2253	2322	2390	2459	2527	2596		
28	2665	2733	2802	2871	2939	3008	3076	3145	3214	3282		
29	3351	3420	3488	3557	3625	3694	3763	3831	3900	3968		
6330	4037	4106	4174	4243	4312	4380	4449	4517	4586	4655		
31	4723	4792	4860	4929	4998	5066	5135	5203	5272	5340		
32	5409	5478	5546	5615	5683	5752	5821	5889	5958	6026		
33	6095	6163	6232	6301	6369	6438	6506	6575	6643	6712		
34	6781	6849	6918	6986	7055	7123	7192	7261	7329	7398		
35	7466	7535	7603	7672	7740	7809	7878	7946	8015	8083		
36	8152	8220	8289	8357	8426	8494	8563	8631	8700	8769		
37	8837	8906	8974	9043	9111	9180	9248	9317	9385	9454		
38	9522	9591	9659	9728	9796	9865	9933	0002	0070	0139		
39	8020208	0276	0345	0413	0482	0550	0619	0687	0756	0824		
6340	0893	0961	1030	1098	1167	1235	1304	1372	1441	1509		
41	1578	1646	1715	1783	1851	1920	1988	2057	2125	2194		
42	2262	2331	2399	2468	2536	2605	2673	2742	2810	2879		
43	2947	3016	3084	3153	3221	3289	3358	3426	3495	3563		
44	3632	3700	3769	3837	3906	3974	4042	4111	4179	4248		
45	4316	4385	4453	4522	4590	4658	4727	4795	4864	4932		
46	5001	5069	5138	5206	5274	5343	5411	5480	5548	5617		
47	5685	5753	5822	5890	5959	6027	6096	6164	6232	6301		
48	6369	6438	6506	6574	6643	6711	6780	6848	6916	6985		
49	7053	7122	7190	7258	7327	7395	7464	7532	7600	7669		
N	O	I	2	3	4	5	6	7	8	9	D	Pro

69

1	7
2	14
3	21
4	28
5	35
6	41
7	48
8	55
9	61

68

1	7
2	14
3	20
4	27
5	34
6	41
7	48
8	54
9	61

(114)

LOGARITHMS

N. 635 L. 802

N	O	I	2	3	4	5	6	7	8	9	D	Pro
6350	8027737	7806	7874	7942	8011	8079	8148	8216	8284	8353		
51	8421	8490	8558	8626	8695	8763	8831	8900	8968	9037		
52	9105	9173	9242	9310	9378	9447	9515	9583	9652	9720		
53	9789	9857	9925	9994	0062	0130	0199	0267	0335	0404		
54	8030472	0540	0609	0677	0745	0814	0882	0951	1019	1087		
55	1156	1224	1292	1361	1429	1497	1566	1634	1702	1771		
56	1839	1907	1976	2044	2112	2181	2249	2317	2385	2454		
57	2522	2590	2659	2727	2795	2864	2932	3000	3069	3137		
58	3205	3274	3342	3410	3478	3547	3615	3683	3752	3820		
59	3888	3957	4025	4093	4161	4230	4298	4366	4435	4503		
6360	4571	4639	4708	4776	4844	4913	4981	5049	5117	5186		
61	5254	5322	5391	5459	5527	5595	5664	5732	5800	5868		
62	5937	6005	6073	6141	6210	6278	6346	6414	6483	6551		
63	6619	6687	6756	6824	6892	6960	7029	7097	7165	7233		
64	7302	7370	7438	7506	7575	7643	7711	7779	7848	7916		
65	7984	8052	8121	8189	8257	8325	8393	8462	8530	8598		
66	8666	8735	8803	8871	8939	9007	9076	9144	9212	9280		
67	9348	9417	9485	9553	9621	9690	9758	9826	9894	9962		
68	8040031	0099	0167	0235	0303	0372	0440	0508	0576	0644		
69	0712	0781	0849	0917	0985	1053	1122	1190	1258	1326		
6370	1394	1463	1531	1599	1667	1735	1803	1872	1940	2008		
71	2076	2144	2212	2281	2349	2417	2485	2553	2621	2690		
72	2758	2826	2894	2962	3030	3098	3167	3235	3303	3371		
73	3439	3507	3575	3644	3712	3780	3848	3916	3984	4052		
74	4121	4189	4257	4325	4393	4461	4529	4597	4666	4734		
75	4802	4870	4938	5006	5074	5143	5211	5279	5347	5415		
76	5483	5551	5619	5687	5756	5824	5892	5960	6028	6096		
77	6164	6232	6300	6368	6437	6505	6573	6641	6709	6777		
78	6845	6913	6981	7049	7118	7186	7254	7322	7390	7458		
79	7526	7594	7662	7730	7798	7866	7934	8003	8071	8139		
6380	8207	8275	8343	8411	8479	8547	8615	8683	8751	8819		
81	8887	8956	9024	9092	9160	9228	9296	9364	9432	9500		
82	9568	9636	9704	9772	9840	9908	9976	0044	0112	0180		
83	8050248	0316	0385	0453	0521	0589	0657	0725	0793	0861		
84	0929	0997	1065	1133	1201	1269	1337	1405	1473	1541		
85	1609	1677	1745	1813	1881	1949	2017	2085	2153	2221		
86	2289	2357	2425	2493	2561	2629	2697	2765	2833	2901		
87	2969	3037	3105	3173	3241	3309	3377	3445	3513	3581		
88	3649	3717	3785	3853	3921	3989	4057	4125	4193	4261		
89	4329	4397	4465	4533	4601	4669	4737	4805	4873	4941		
6390	5009	5077	5145	5212	5280	5348	5416	5484	5552	5620		
91	5688	5756	5824	5892	5960	6028	6096	6164	6232	6300		
92	6368	6436	6504	6571	6639	6707	6775	6843	6911	6979		
93	7047	7115	7183	7251	7319	7387	7455	7523	7590	7658		
94	7726	7794	7862	7930	7998	8066	8134	8202	8270	8338		
95	8405	8473	8541	8609	8677	8745	8813	8881	8949	9017		
96	9085	9152	9220	9288	9356	9424	9492	9560	9628	9696		
97	9764	9831	9899	9967	0035	0103	0171	0239	0307	0374		
98	8060442	0510	0578	0646	0714	0782	0850	0917	0985	1053		
99	1121	1189	1257	1325	1393	1460	1528	1596	1664	1732		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

69

1	7
2	14
3	21
4	28
5	35
6	41
7	48
8	55
9	62

68

1	7
2	14
3	20
4	27
5	34
6	41
7	48
8	54
9	61

68

N	O	I	2	3	4	5	6	7	8	9	D	Pro
6400	8061800	1868	1935	2003	2071	2139	2207	2275	2343	2410		
01	2478	2546	2614	2682	2750	2817	2885	2953	3021	3089		
02	3157	3225	3292	3360	3428	3496	3564	3632	3699	3767		
03	3835	3903	3971	4038	4106	4174	4242	4310	4378	4445		
04	4513	4581	4649	4717	4784	4852	4920	4988	5056	5124		
05	5191	5259	5327	5395	5463	5530	5598	5666	5734	5802		
06	5869	5937	6005	6073	6141	6208	6276	6344	6412	6479		
07	6547	6615	6683	6751	6818	6886	6954	7022	7089	7157		
08	7225	7293	7361	7428	7496	7564	7632	7699	7767	7835		
09	7903	7970	8038	8106	8174	8242	8309	8377	8445	8513		
6410	8580	8648	8716	8784	8851	8919	8987	9055	9122	9190		
11	9258	9326	9393	9461	9529	9596	9664	9732	9800	9867		
12	9935	0003	0071	0138	0206	0274	0342	0409	0477	0545		
13	8070612	0680	0748	0816	0883	0951	1019	1086	1154	1222		
14	1290	1357	1425	1493	1560	1628	1696	1764	1831	1899		
15	1967	2034	2102	2170	2237	2305	2373	2440	2508	2576		
16	2644	2711	2779	2847	2914	2982	3050	3117	3185	3253		
17	3320	3388	3456	3523	3591	3659	3726	3794	3862	3929		
18	3997	4065	4132	4200	4268	4335	4403	4471	4538	4606		
19	4674	4741	4809	4877	4944	5012	5080	5147	5215	5283		
6420	5350	5418	5486	5553	5621	5689	5756	5824	5891	5959		
21	6027	6094	6162	6230	6297	6365	6432	6500	6568	6635		
22	6703	6771	6838	6906	6974	7041	7109	7176	7244	7312		
23	7379	7447	7514	7582	7650	7717	7785	7853	7920	7988		
24	8055	8123	8191	8258	8326	8393	8461	8529	8596	8664		
25	8731	8799	8867	8934	9002	9069	9137	9204	9272	9340		
26	9407	9475	9542	9610	9678	9745	9813	9880	9948	0015		
27	8080083	0151	0218	0286	0353	0421	0488	0556	0624	0691		
28	0759	0826	0894	0961	1029	1096	1164	1232	1299	1367		
29	1434	1502	1569	1637	1704	1772	1840	1907	1975	2042		
6430	2110	2177	2245	2312	2380	2447	2515	2582	2650	2718		
31	2785	2853	2920	2988	3055	3123	3190	3258	3325	3393		
32	3460	3528	3595	3663	3730	3798	3865	3933	4000	4068		
33	4136	4203	4271	4338	4406	4473	4541	4608	4676	4743		
34	4811	4878	4946	5013	5081	5148	5216	5283	5351	5418		
35	5486	5553	5620	5688	5755	5823	5890	5958	6025	6093		
36	6160	6228	6295	6363	6430	6498	6565	6633	6700	6768		
37	6835	6903	6970	7037	7105	7172	7240	7307	7375	7442		
38	7510	7577	7645	7712	7780	7847	7914	7982	8049	8117		
39	8184	8252	8319	8387	8454	8521	8589	8656	8724	8791		
6440	8859	8926	8994	9061	9128	9196	9263	9331	9398	9466		
41	9533	9600	9668	9735	9803	9870	9938	0005	0072	0140		
42	8090207	0275	0342	0409	0477	0544	0612	0679	0747	0814		
43	0881	0949	1016	1084	1151	1218	1286	1353	1421	1488		
44	1555	1623	1690	1757	1825	1892	1960	2027	2094	2162		
45	2229	2297	2364	2431	2499	2566	2634	2701	2768	2836		
46	2903	2970	3038	3105	3173	3240	3307	3375	3442	3509		
47	3577	3644	3711	3779	3846	3914	3981	4048	4116	4183		
48	4250	4318	4385	4452	4520	4587	4654	4722	4789	4856		
49	4924	4991	5058	5126	5193	5260	5328	5395	5462	5530		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

68

1	7
2	14
3	20
4	27
5	34
6	41
7	48
8	54
9	61

67

1	7
2	13
3	20
4	27
5	34
6	40
7	47
8	54
9	60

N	0	1	2	3	4	5	6	7	8	9	D	Pro
6450	8095597	5664	5732	5799	5866	5934	6001	6068	6136	6203		
51	6270	6338	6405	6472	6540	6607	6674	6742	6809	6876		
52	6944	7011	7078	7146	7213	7280	7347	7415	7482	7549		
53	7617	7684	7751	7819	7886	7953	8020	8088	8155	8222		
54	8290	8357	8424	8491	8559	8626	8693	8761	8828	8895		
55	8962	9030	9097	9164	9232	9299	9366	9433	9501	9568		
56	9635	9702	9770	9837	9904	9972	0039	0106	0173	0241		
57	8100308	0375	0442	0510	0577	0644	0711	0779	0846	0913		
58	0980	1048	1115	1182	1249	1317	1384	1451	1518	1586		
59	1653	1720	1787	1855	1922	1989	2056	2123	2191	2258		
6460	2325	2392	2460	2527	2594	2661	2729	2796	2863	2930		
61	2997	3065	3132	3199	3266	3333	3401	3468	3535	3602		
62	3670	3737	3804	3871	3938	4006	4073	4140	4207	4274		
63	4342	4409	4476	4543	4610	4678	4745	4812	4879	4946		
64	5013	5081	5148	5215	5282	5349	5417	5484	5551	5618		
65	5685	5752	5820	5887	5954	6021	6088	6156	6223	6290		
66	6357	6424	6491	6558	6626	6693	6760	6827	6894	6961		
67	7029	7096	7163	7230	7297	7364	7432	7499	7566	7633		
68	7700	7767	7834	7902	7969	8036	8103	8170	8237	8304		
69	8372	8439	8506	8573	8640	8707	8774	8841	8909	8976		
6470	9043	9110	9177	9244	9311	9378	9446	9513	9580	9647		
71	9714	9781	9848	9915	9982	0050	0117	0184	0251	0318		
72	8110385	0452	0519	0586	0653	0721	0788	0855	0922	0989		
73	1056	1123	1190	1257	1324	1392	1459	1526	1593	1660		
74	1727	1794	1861	1928	1995	2062	2129	2197	2264	2331		
75	2398	2465	2532	2599	2666	2733	2800	2867	2934	3001		
76	3068	3135	3203	3270	3337	3404	3471	3538	3605	3672		
77	3739	3806	3873	3940	4007	4074	4141	4208	4275	4342		
78	4409	4476	4544	4611	4678	4745	4812	4879	4946	5013		
79	5080	5147	5214	5281	5348	5415	5482	5549	5616	5683		
6480	5750	5817	5884	5951	6018	6085	6152	6219	6286	6353		
81	6420	6487	6554	6621	6688	6755	6822	6889	6956	7023		
82	7090	7157	7224	7291	7358	7425	7492	7559	7626	7693		
83	7760	7827	7894	7961	8028	8095	8162	8229	8296	8363		
84	8430	8497	8564	8631	8698	8765	8832	8899	8966	9033		
85	9100	9167	9234	9301	9368	9435	9502	9569	9636	9702		
86	9769	9836	9903	9970	0037	0104	0171	0238	0305	0372		
87	8120439	0506	0573	0640	0707	0774	0841	0908	0975	1041		
88	1108	1175	1242	1309	1376	1443	1510	1577	1644	1711		
89	1778	1845	1912	1979	2045	2112	2179	2246	2313	2380		
6490	2447	2514	2581	2648	2715	2782	2848	2915	2982	3049		
91	3116	3183	3250	3317	3384	3451	3518	3584	3651	3718		
92	3785	3852	3919	3986	4053	4120	4186	4253	4320	4387		
93	4454	4521	4588	4655	4722	4788	4855	4922	4989	5056		
94	5123	5190	5257	5323	5390	5457	5524	5591	5658	5725		
95	5792	5858	5925	5992	6059	6126	6193	6260	6326	6393		
96	6460	6527	6594	6661	6728	6794	6861	6928	6995	7062		
97	7129	7196	7262	7329	7396	7463	7530	7597	7663	7730		
98	7797	7864	7931	7998	8064	8131	8198	8265	8332	8399		
99	8465	8532	8599	8666	8733	8799	8866	8933	9000	9067		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

68

1	7
2	14
3	20
4	27
5	34
6	41
7	48
8	54
9	61

67

67

1	7
2	13
3	20
4	27
5	34
6	40
7	47
8	54
9	60

N	O	I	2	3	4	5	6	7	8	9	D	Pro
6500	8129134	9200	9267	9334	9401	9468	9534	9601	9668	9735		
01	9802	9868	9935	0002	0069	0136	0202	0269	0336	0403		
02	8130470	0536	0603	0670	0737	0804	0870	0937	1004	1071		
03	1138	1204	1271	1338	1405	1471	1538	1605	1672	1739		
04	1805	1872	1939	2006	2072	2139	2206	2273	2339	2406		
05	2473	2540	2607	2673	2740	2807	2874	2940	3007	3074		
06	3141	3207	3274	3341	3408	3474	3541	3608	3675	3741		
07	3808	3875	3942	4008	4075	4142	4209	4275	4342	4409		
08	4475	4542	4609	4676	4742	4809	4876	4943	5009	5076		
09	5143	5209	5276	5343	5410	5476	5543	5610	5676	5743		
6510	5810	5877	5943	6010	6077	6143	6210	6277	6344	6410		
11	6477	6544	6610	6677	6744	6810	6877	6944	7011	7077		
12	7144	7211	7277	7344	7411	7477	7544	7611	7677	7744		
13	7811	7877	7944	8011	8077	8144	8211	8278	8344	8411		
14	8478	8544	8611	8678	8744	8811	8878	8944	9011	9078		
15	9144	9211	9278	9344	9411	9477	9544	9611	9677	9744		
16	9811	9877	9944	0011	0077	0144	0211	0277	0344	0411		
17	8140477	0544	0610	0677	0744	0810	0877	0944	1010	1077		
18	1144	1210	1277	1343	1410	1477	1543	1610	1677	1743		
19	1810	1876	1943	2010	2076	2143	2210	2276	2343	2409		
6520	2476	2543	2609	2676	2742	2809	2876	2942	3009	3075		
21	3142	3209	3275	3342	3408	3475	3542	3608	3675	3741		
22	3808	3875	3941	4008	4074	4141	4207	4274	4341	4407		
23	4474	4540	4607	4674	4740	4807	4873	4940	5006	5073		
24	5140	5206	5273	5339	5406	5472	5539	5605	5672	5739		
25	5805	5872	5938	6005	6071	6138	6204	6271	6338	6404		
26	6471	6537	6604	6670	6737	6803	6870	6937	7003	7070		
27	7136	7203	7269	7336	7402	7469	7535	7602	7668	7735		
28	7801	7868	7935	8001	8068	8134	8201	8267	8334	8400		
29	8467	8533	8600	8666	8733	8799	8866	8932	8999	9065		
6530	9132	9198	9265	9331	9398	9464	9531	9597	9664	9730		
31	9797	9863	9930	9996	0063	0129	0196	0262	0329	0395		
32	8150462	0528	0595	0661	0728	0794	0861	0927	0994	1060		
33	1127	1193	1260	1326	1392	1459	1525	1592	1658	1725		
34	1791	1858	1924	1991	2057	2124	2190	2257	2323	2389		
35	2456	2522	2589	2655	2722	2788	2855	2921	2988	3054		
36	3120	3187	3253	3320	3386	3453	3519	3586	3652	3718		
37	3785	3851	3918	3984	4051	4117	4183	4250	4316	4383		
38	4449	4516	4582	4648	4715	4781	4848	4914	4981	5047		
39	5113	5180	5246	5313	5379	5445	5512	5578	5645	5711		
6540	5777	5844	5910	5977	6043	6110	6176	6242	6309	6375		
41	6441	6508	6574	6641	6707	6773	6840	6906	6973	7039		
42	7105	7172	7238	7305	7371	7437	7504	7570	7636	7703		
43	7769	7836	7902	7968	8035	8101	8167	8234	8300	8367		
44	8433	8499	8566	8632	8698	8765	8831	8897	8964	9030		
45	9097	9163	9229	9296	9362	9428	9495	9561	9627	9694		
46	9760	9826	9893	9959	0025	0092	0158	0224	0291	0357		
47	8160423	0490	0556	0622	0689	0755	0821	0888	0954	1020		
48	1087	1153	1219	1286	1352	1418	1485	1551	1617	1684		
49	1750	1816	1883	1949	2015	2081	2148	2214	2280	2347		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

67

1	7
2	13
3	20
4	27
5	34
6	40
7	47
8	54
9	6

66

1	7
2	13
3	20
4	26
5	33
6	40
7	46
8	53
9	59

N	0	1	2	3	4	5	6	7	8	9	D	Pro
6550	8162413	2479	2546	2612	2678	2745	2811	2877	2943	3010		
51	3076	3142	3209	3275	3341	3407	3474	3540	3606	3673		
52	3739	3805	3871	3938	4004	4070	4137	4203	4269	4335		
53	4402	4468	4534	4600	4667	4733	4799	4866	4932	4998		
54	5064	5131	5197	5263	5329	5396	5462	5528	5594	5661		
55	5727	5793	5859	5926	5992	6058	6124	6191	6257	6323		
56	6389	6456	6522	6588	6654	6721	6787	6853	6919	6986		
57	7052	7118	7184	7251	7317	7383	7449	7515	7582	7648		
58	7714	7780	7847	7913	7979	8045	8111	8178	8244	8310		
59	8376	8443	8509	8575	8641	8707	8774	8840	8906	8972		
6560	9038	9105	9171	9237	9303	9369	9436	9502	9568	9634		
61	9700	9767	9833	9899	9965	0031	0098	0164	0230	0296		
62	8170362	0428	0495	0561	0627	0693	0759	0826	0892	0958		
63	1024	1090	1156	1223	1289	1355	1421	1487	1553	1620		
64	1686	1752	1818	1884	1950	2017	2083	2149	2215	2281		
65	2347	2413	2480	2546	2612	2678	2744	2810	2876	2943		
66	3009	3075	3141	3207	3273	3339	3406	3472	3538	3604		
67	3670	3736	3802	3869	3935	4001	4067	4133	4199	4265		
68	4331	4398	4464	4530	4596	4662	4728	4794	4860	4927		
69	4993	5059	5125	5191	5257	5323	5389	5455	5521	5588		
6570	5654	5720	5786	5852	5918	5984	6050	6116	6182	6249		
71	6315	6381	6447	6513	6579	6645	6711	6777	6843	6909		
72	6976	7042	7108	7174	7240	7306	7372	7438	7504	7570		
73	7636	7702	7768	7835	7901	7967	8033	8099	8165	8231		
74	8297	8363	8429	8495	8561	8627	8693	8759	8825	8892		
75	8958	9024	9090	9156	9222	9288	9354	9420	9486	9552		
76	9618	9684	9750	9816	9882	9948	0014	0080	0146	0212		
77	8180278	0344	0410	0477	0543	0609	0675	0741	0807	0873		
78	0939	1005	1071	1137	1203	1269	1335	1401	1467	1533		
79	1599	1665	1731	1797	1863	1929	1995	2061	2127	2193		
6580	2259	2325	2391	2457	2523	2589	2655	2721	2787	2853		
81	2919	2985	3051	3117	3183	3249	3315	3381	3447	3513		
82	3579	3645	3711	3777	3843	3909	3975	4041	4107	4173		
83	4239	4305	4370	4436	4502	4568	4634	4700	4766	4832		
84	4898	4964	5030	5096	5162	5228	5294	5360	5426	5492		
85	5558	5624	5690	5756	5822	5888	5953	6019	6085	6151		
86	6217	6283	6349	6415	6481	6547	6613	6679	6745	6811		
87	6877	6943	7008	7074	7140	7206	7272	7338	7404	7470		
88	7536	7602	7668	7734	7800	7866	7931	7997	8063	8129		
89	8195	8261	8327	8393	8459	8525	8591	8656	8722	8788		
6590	8854	8920	8986	9052	9118	9184	9250	9315	9381	9447		
91	9513	9579	9645	9711	9777	9843	9908	9974	0040	0106		
92	8190172	0238	0304	0370	0436	0501	0567	0633	0699	0765		
93	0831	0897	0962	1028	1094	1160	1226	1292	1358	1424		
94	1489	1555	1621	1687	1753	1819	1885	1950	2016	2082		
95	2148	2214	2280	2346	2411	2477	2543	2609	2675	2741		
96	2806	2872	2938	3004	3070	3136	3202	3267	3333	3399		
97	3465	3531	3597	3662	3728	3794	3860	3926	3991	4057		
98	4123	4189	4255	4321	4386	4452	4518	4584	4650	4715		
99	4781	4847	4913	4979	5045	5110	5176	5242	5308	5374		
N	0	1	2	3	4	5	6	7	8	9	D	Pro

67

1	7
2	13
3	20
4	27
5	34
6	40
7	47
8	54
9	60

66

66

1	7
2	13
3	20
4	26
5	33
6	40
7	46
8	53
9	59

N	O	1	2	3	4	5	6	7	8	9	D	Pro
6600	8195439	5505	5571	5637	5703	5768	5834	5900	5966	6032		
01	6097	6163	6229	6295	6360	6426	6492	6558	6624	6689		
02	6755	6821	6887	6953	7018	7084	7150	7216	7281	7347		
03	7413	7479	7545	7610	7676	7742	7808	7873	7939	8005		
04	8071	8136	8202	8268	8334	8399	8465	8531	8597	8662		
05	8728	8794	8860	8925	8991	9057	9123	9188	9254	9320		
06	9386	9451	9517	9583	9649	9714	9780	9846	9912	9977		
07	8200043	0109	0175	0240	0306	0372	0437	0503	0569	0635		
08	0700	0766	0832	0898	0963	1029	1095	1160	1226	1292		
09	1358	1423	1489	1555	1620	1686	1752	1817	1883	1949		
6610	2015	2080	2146	2212	2277	2343	2409	2474	2540	2606		
11	2672	2737	2803	2869	2934	3000	3066	3131	3197	3263		
12	3328	3394	3460	3525	3591	3657	3723	3788	3854	3920		
13	3985	4051	4117	4182	4248	4314	4379	4445	4511	4576		
14	4642	4708	4773	4839	4905	4970	5036	5102	5167	5233		
15	5298	5364	5430	5495	5561	5627	5692	5758	5824	5889		
16	5955	6021	6086	6152	6218	6283	6349	6414	6480	6546		
17	6611	6677	6743	6808	6874	6939	7005	7071	7136	7202		
18	7268	7333	7399	7464	7530	7596	7661	7727	7793	7858		
19	7924	7989	8055	8121	8186	8252	8317	8383	8449	8514		
6620	8580	8645	8711	8777	8842	8908	8973	9039	9105	9170		
21	9236	9301	9367	9433	9498	9564	9629	9695	9761	9826		
22	9892	9957	0023	0089	0154	0220	0285	0351	0416	0482		
23	8210548	0613	0679	0744	0810	0875	0941	1007	1072	1138		
24	1203	1269	1334	1400	1465	1531	1597	1662	1728	1793		
25	1859	1924	1990	2055	2121	2187	2252	2318	2383	2449		
26	2514	2580	2645	2711	2776	2842	2908	2973	3039	3104		
27	3170	3235	3301	3366	3432	3497	3563	3628	3694	3759		
28	3825	3891	3956	4022	4087	4153	4218	4284	4349	4415		
29	4480	4546	4611	4677	4742	4808	4873	4939	5004	5070		
6630	5135	5201	5266	5332	5397	5463	5528	5594	5659	5725		
31	5790	5856	5921	5987	6052	6118	6183	6249	6314	6380		
32	6445	6511	6576	6642	6707	6773	6838	6904	6969	7034		
33	7100	7165	7231	7296	7362	7427	7493	7558	7624	7689		
34	7755	7820	7886	7951	8017	8082	8147	8213	8278	8344		
35	8409	8475	8540	8606	8671	8737	8802	8867	8933	8998		
36	9064	9129	9195	9260	9326	9391	9456	9522	9587	9653		
37	9718	9784	9849	9914	9980	0045	0111	0176	0242	0307		
38	8220372	0438	0503	0569	0634	0700	0765	0830	0896	0961		
39	1027	1092	1158	1223	1288	1354	1419	1485	1550	1615		
6640	1681	1746	1812	1877	1942	2008	2073	2139	2204	2269		
41	2335	2400	2466	2531	2596	2662	2727	2793	2858	2923		
42	2989	3054	3119	3185	3250	3316	3381	3446	3512	3577		
43	3643	3708	3773	3839	3904	3969	4035	4100	4166	4231		
44	4296	4362	4427	4492	4558	4623	4688	4754	4819	4884		
45	4950	5015	5081	5146	5211	5277	5342	5407	5473	5538		
46	5603	5669	5734	5799	5865	5930	5995	6061	6126	6191		
47	6257	6322	6387	6453	6518	6583	6649	6714	6779	6845		
48	6910	6975	7041	7106	7171	7237	7302	7367	7433	7498		
49	7563	7629	7694	7759	7825	7890	7955	8021	8086	8151		
N	O	1	2	3	4	5	6	7	8	9	D	Pts

66

1	7
2	13
3	20
4	26
5	33
6	40
7	46
8	53
9	59

65

1	7
2	13
3	20
4	26
5	33
6	39
7	46
8	53
9	59

(120)

LOGARITHMS

N. 665 L. 822

N	0	1	2	3	4	5	6	7	8	9	D	Pro
6650	8228216	8282	8347	8412	8478	8543	8608	8674	8739	8804		
51	8869	8935	9000	9065	9131	9196	9261	9327	9392	9457		
52	9522	9588	9653	9718	9784	9849	9914	9979	0045	0110		
53	8230175	0241	0306	0371	0436	0502	0567	0632	0697	0763		
54	0828	0893	0958	1024	1089	1154	1220	1285	1350	1415		
55	1481	1546	1611	1676	1742	1807	1872	1937	2003	2068		
56	2133	2198	2264	2329	2394	2459	2525	2590	2655	2720		
57	2786	2851	2916	2981	3047	3112	3177	3242	3307	3373		
58	3438	3503	3568	3634	3699	3764	3829	3894	3960	4025		
59	4090	4155	4221	4286	4351	4416	4481	4547	4612	4677		
6660	4742	4808	4873	4938	5003	5068	5134	5199	5264	5329		
61	5394	5460	5525	5590	5655	5720	5786	5851	5916	5981		
62	6046	6111	6177	6242	6307	6372	6437	6503	6568	6633		
63	6698	6763	6828	6894	6959	7024	7089	7154	7220	7285		
64	7350	7415	7480	7545	7611	7676	7741	7806	7871	7936		
65	8002	8067	8132	8197	8262	8327	8392	8458	8523	8588		
66	8653	8718	8783	8849	8914	8979	9044	9109	9174	9239		
67	9305	9370	9435	9500	9565	9630	9695	9761	9826	9891		
68	9956	0021	0086	0151	0216	0282	0347	0412	0477	0542		
69	8240607	0672	0737	0803	0868	0933	0998	1063	1128	1193		
6670	1258	1323	1389	1454	1519	1584	1649	1714	1779	1844		
71	1909	1975	2040	2105	2170	2235	2300	2365	2430	2495		
72	2560	2625	2691	2756	2821	2886	2951	3016	3081	3146		
73	3211	3276	3341	3406	3472	3537	3602	3667	3732	3797		
74	3862	3927	3992	4057	4122	4187	4252	4318	4383	4448		
75	4513	4578	4643	4708	4773	4838	4903	4968	5033	5098		
76	5163	5228	5293	5358	5423	5489	5554	5619	5684	5749		
77	5814	5879	5944	6009	6074	6139	6204	6269	6334	6399		
78	6464	6529	6594	6659	6724	6789	6854	6919	6984	7049		
79	7114	7179	7244	7310	7375	7440	7505	7570	7635	7700		
6680	7765	7830	7895	7960	8025	8090	8155	8220	8285	8350		
81	8415	8480	8545	8610	8675	8740	8805	8870	8935	9000		
82	9065	9130	9195	9260	9325	9390	9455	9520	9585	9650		
83	9715	9780	9845	9910	9975	0040	0105	0169	0234	0299		
84	8250364	0429	0494	0559	0624	0689	0754	0819	0884	0949		
85	1014	1079	1144	1209	1274	1339	1404	1469	1534	1599		
86	1664	1729	1794	1859	1924	1988	2053	2118	2183	2248		
87	2313	2378	2443	2508	2573	2638	2703	2768	2833	2898		
88	2963	3028	3093	3157	3222	3287	3352	3417	3482	3547		
89	3612	3677	3742	3807	3872	3937	4002	4066	4131	4196		
6690	4261	4326	4391	4456	4521	4586	4651	4716	4780	4845		
91	4910	4975	5040	5105	5170	5235	5300	5365	5430	5494		
92	5559	5624	5689	5754	5819	5884	5949	6014	6078	6143		
93	6208	6273	6338	6403	6468	6533	6598	6662	6727	6792		
94	6857	6922	6987	7052	7117	7181	7246	7311	7376	7441		
95	7506	7571	7636	7700	7765	7830	7895	7960	8025	8090		
96	8154	8219	8284	8349	8414	8479	8544	8608	8673	8738		
97	8803	8868	8933	8998	9062	9127	9192	9257	9322	9387		
98	9451	9516	9581	9646	9711	9776	9840	9905	9970	0035		
99	8260100	0165	0229	0294	0359	0424	0489	0554	0618	0683		
N	0	1	2	3	4	5	6	7	8	9	D	Pro

66

1	7
2	13
3	20
4	26
5	33
6	40
7	46
8	53
9	59

65

1	7
2	13
3	20
4	26
5	33
6	39
7	46
8	52
9	59

27

N	0	1	2	3	4	5	6	7	8	9	D	Pro
6700	8260748	0813	0878	0942	1007	1072	1137	1202	1267	1331		
01	1396	1461	1526	1591	1655	1720	1785	1850	1915	1979		
02	2044	2109	2174	2239	2303	2368	2433	2498	2563	2627		
03	2692	2757	2822	2887	2951	3016	3081	3146	3210	3275		
04	3340	3405	3470	3534	3599	3664	3729	3794	3858	3923		
05	3988	4053	4117	4182	4247	4312	4376	4441	4506	4571		
06	4635	4700	4765	4830	4895	4959	5024	5089	5154	5218		
07	5283	5348	5413	5477	5542	5607	5672	5736	5801	5866		
08	5931	5995	6060	6125	6190	6254	6319	6384	6448	6513		
09	6578	6643	6707	6772	6837	6902	6966	7031	7096	7160		
6710	7225	7290	7355	7419	7484	7549	7614	7678	7743	7808		
11	7872	7937	8002	8067	8131	8196	8261	8325	8390	8455		
12	8519	8584	8649	8714	8778	8843	8908	8972	9037	9102		
13	9166	9231	9296	9361	9425	9490	9555	9619	9684	9749		
14	9813	9878	9943	0007	0072	0137	0201	0266	0331	0395		
15	8270460	0525	0590	0654	0719	0784	0848	0913	0978	1042		
16	1107	1172	1236	1301	1366	1430	1495	1560	1624	1689		
17	1753	1818	1883	1947	2012	2077	2141	2206	2271	2335		
18	2400	2465	2529	2594	2659	2723	2788	2852	2917	2982		
19	3046	3111	3176	3240	3305	3370	3434	3499	3563	3628		
6720	3693	3757	3822	3887	3951	4016	4080	4145	4210	4274		
21	4339	4404	4468	4533	4597	4662	4727	4791	4856	4920		
22	4985	5050	5114	5179	5244	5308	5373	5437	5502	5567		
23	5631	5696	5760	5825	5889	5954	6019	6083	6148	6212		
24	6277	6342	6406	6471	6535	6600	6665	6729	6794	6858		
25	6923	6987	7052	7117	7181	7246	7310	7375	7439	7504		
26	7569	7633	7698	7762	7827	7891	7956	8021	8085	8150		
27	8214	8279	8343	8408	8473	8537	8602	8666	8731	8795		
28	8860	8924	8989	9053	9118	9183	9247	9312	9376	9441		
29	9505	9570	9634	9699	9763	9828	9893	9957	0022	0086		
6730	8280151	0215	0280	0344	0409	0473	0538	0602	0667	0731		
31	0796	0860	0925	0989	1054	1119	1183	1248	1312	1377		
32	1441	1506	1570	1635	1699	1764	1828	1893	1957	2022		
33	2086	2151	2215	2280	2344	2409	2473	2538	2602	2667		
34	2731	2796	2860	2925	2989	3054	3118	3183	3247	3312		
35	3376	3440	3505	3569	3634	3698	3763	3827	3892	3956		
36	4021	4085	4150	4214	4279	4343	4408	4472	4537	4601		
37	4665	4730	4794	4859	4923	4988	5052	5117	5181	5246		
38	5310	5375	5439	5503	5568	5632	5697	5761	5826	5890		
39	5955	6019	6083	6148	6212	6277	6341	6406	6470	6535		
6740	6599	6663	6728	6792	6857	6921	6986	7050	7114	7179		
41	7243	7308	7372	7437	7501	7565	7630	7694	7759	7823		
42	7887	7952	8016	8081	8145	8210	8274	8338	8403	8467		
43	8532	8596	8660	8725	8789	8854	8918	8982	9047	9111		
44	9176	9240	9304	9369	9433	9498	9562	9626	9691	9755		
45	9820	9884	9948	0013	0077	0141	0206	0270	0335	0399		
46	8290463	0528	0592	0656	0721	0785	0850	0914	0978	1043		
47	1107	1171	1236	1300	1365	1429	1493	1558	1622	1686		
48	1751	1815	1879	1944	2008	2073	2137	2201	2266	2330		
49	2394	2459	2523	2587	2652	2716	2780	2845	2909	2973		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

65

1	7
2	13
3	20
4	26
5	33
6	39
7	46
8	52
9	59

64

1	6
2	13
3	19
4	26
5	32
6	38
7	45
8	51
9	58

N	O	I	2	3	4	5	6	7	8	9	D	Pro
6750	8293038	3102	3166	3231	3295	3359	3424	3488	3552	3617		
51	3681	3745	3810	3874	3938	4003	4067	4131	4196	4260		
52	4324	4389	4453	4517	4582	4646	4710	4775	4839	4903		
53	4967	5032	5096	5160	5225	5289	5353	5418	5482	5546		
54	5611	5675	5739	5803	5868	5932	5996	6061	6125	6189		
55	6254	6318	6382	6446	6511	6575	6639	6704	6768	6832		
56	6896	6961	7025	7089	7154	7218	7282	7346	7411	7475		
57	7539	7603	7668	7732	7796	7861	7925	7989	8053	8118		
58	8182	8246	8310	8375	8439	8503	8567	8632	8696	8760		
59	8824	8889	8953	9017	9081	9146	9210	9274	9338	9403		
6760	9467	9531	9595	9660	9724	9788	9852	9917	9981	0045		
61	8300109	0174	0238	0302	0366	0431	0495	0559	0623	0687	65	
62	0752	0816	0880	0944	1009	1073	1137	1201	1265	1330	1	7
63	1394	1458	1522	1587	1651	1715	1779	1843	1908	1972	2	13
64	2036	2100	2164	2229	2293	2357	2421	2485	2550	2614	3	20
65	2678	2742	2806	2871	2935	2999	3063	3127	3192	3256	4	26
66	3320	3384	3448	3512	3577	3641	3705	3769	3833	3898	5	33
67	3962	4026	4090	4154	4218	4283	4347	4411	4475	4539	6	39
68	4604	4668	4732	4796	4860	4924	4988	5053	5117	5181	7	46
69	5245	5309	5373	5438	5502	5566	5630	5694	5758	5823	8	52
6770	5887	5951	6015	6079	6143	6207	6272	6336	6400	6464	9	59
71	6528	6592	6656	6721	6785	6849	6913	6977	7041	7105		
72	7169	7234	7298	7362	7426	7490	7554	7618	7683	7747		
73	7811	7875	7939	8003	8067	8131	8195	8260	8324	8388		
74	8452	8516	8580	8644	8708	8772	8837	8901	8965	9029		
75	9093	9157	9221	9285	9349	9413	9478	9542	9606	9670		
76	9734	9798	9862	9926	9990	0054	0119	0183	0247	0311		
77	8310375	0439	0503	0567	0631	0695	0759	0823	0887	0952		
78	1016	1080	1144	1208	1272	1336	1400	1464	1528	1592		
79	1656	1720	1784	1849	1913	1977	2041	2105	2169	2233		
6780	2297	2361	2425	2489	2553	2617	2681	2745	2809	2873	64	
81	2937	3001	3066	3130	3194	3258	3322	3386	3450	3514	1	6
82	3578	3642	3706	3770	3834	3898	3962	4026	4090	4154	2	13
83	4218	4282	4346	4410	4474	4538	4602	4666	4730	4794	3	19
84	4858	4922	4986	5050	5114	5178	5242	5306	5371	5435	4	26
85	5499	5563	5627	5691	5755	5819	5883	5947	6011	6075	5	32
86	6139	6203	6267	6331	6395	6459	6523	6587	6651	6715	6	38
87	6778	6842	6906	6970	7034	7098	7162	7226	7290	7354	7	45
88	7418	7482	7546	7610	7674	7738	7802	7866	7930	7994	8	51
89	8058	8122	8186	8250	8314	8378	8442	8506	8570	8634	9	58
6790	8698	8762	8826	8890	8954	9018	9081	9145	9209	9273		
91	9337	9401	9465	9529	9593	9657	9721	9785	9849	9913		
92	9977	0041	0105	0169	0233	0296	0360	0424	0488	0552		
93	8320616	0680	0744	0808	0872	0936	1000	1064	1128	1192		
94	1255	1319	1383	1447	1511	1575	1639	1703	1767	1831		
95	1895	1958	2022	2086	2150	2214	2278	2342	2406	2470		
96	2534	2598	2662	2725	2789	2853	2917	2981	3045	3109		
97	3173	3237	3300	3364	3428	3492	3556	3620	3684	3748		
98	3812	3875	3939	4003	4067	4131	4195	4259	4323	4387		
99	4450	4514	4578	4642	4706	4770	4834	4898	4961	5025		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

N	0	1	2	3	4	5	6	7	8	9	D	Pro
800	8325089	5153	5217	5281	5345	5408	5472	5536	5600	5664		
01	5728	5792	5855	5919	5983	6047	6111	6175	6239	6302		
02	6366	6430	6494	6558	6622	6686	6749	6813	6877	6941		
03	7005	7069	7132	7196	7260	7324	7388	7452	7515	7579		
04	7643	7707	7771	7835	7898	7962	8026	8090	8154	8217		
05	8281	8345	8409	8473	8537	8600	8664	8728	8792	8856		
06	8919	8983	9047	9111	9175	9238	9302	9366	9430	9494		
07	9558	9621	9685	9749	9813	9877	9940	0004	0068	0132		
08	8330195	0259	0323	0387	0451	0514	0578	0642	0706	0770		
09	0833	0897	0961	1025	1088	1152	1216	1280	1344	1407		
6810	1471	1535	1599	1662	1726	1790	1854	1918	1981	2045		
11	2109	2173	2236	2300	2364	2428	2491	2555	2619	2683		
12	2746	2810	2874	2938	3001	3065	3129	3193	3256	3320		
13	3384	3448	3511	3575	3639	3703	3766	3830	3894	3958		
14	4021	4085	4149	4212	4276	4340	4404	4467	4531	4595		
15	4659	4722	4786	4850	4913	4977	5041	5105	5168	5232		
16	5296	5360	5423	5487	5551	5614	5678	5742	5806	5869		
17	5933	5997	6060	6124	6188	6251	6315	6379	6443	6506		
18	6570	6634	6697	6761	6825	6888	6952	7016	7080	7143		
19	7207	7271	7334	7398	7462	7525	7589	7653	7716	7780		
6820	7844	7907	7971	8035	8098	8162	8226	8289	8353	8417		
21	8480	8544	8608	8672	8735	8799	8862	8926	8990	9053		
22	9117	9181	9244	9308	9372	9435	9499	9563	9626	9690		
23	9754	9817	9881	9945	0008	0072	0136	0199	0263	0327		
24	8340390	0454	0517	0581	0645	0708	0772	0836	0899	0963		
25	1027	1090	1154	1217	1281	1345	1408	1472	1536	1599		
26	1663	1726	1790	1854	1917	1981	2045	2108	2172	2235		
27	2299	2363	2426	2490	2553	2617	2681	2744	2808	2872		
28	2935	2999	3062	3126	3190	3253	3317	3380	3444	3508		
29	3571	3635	3698	3762	3826	3889	3953	4016	4080	4143		
6830	4207	4271	4334	4398	4461	4525	4589	4652	4716	4779		
31	4843	4906	4970	5034	5097	5161	5224	5288	5351	5415		
32	5479	5542	5606	5669	5733	5796	5860	5924	5987	6051		
33	6114	6178	6241	6305	6368	6432	6496	6559	6623	6686		
34	6750	6813	6877	6940	7004	7067	7131	7195	7258	7322		
35	7385	7449	7512	7576	7639	7703	7766	7830	7893	7957		
36	8021	8084	8148	8211	8275	8338	8402	8465	8529	8592		
37	8656	8719	8783	8846	8910	8973	9037	9100	9164	9227		
38	9291	9354	9418	9481	9545	9609	9672	9736	9799	9863		
39	9926	9990	0053	0117	0180	0244	0307	0371	0434	0498		
6840	8350561	0625	0688	0751	0815	0878	0942	1005	1069	1132		
41	1196	1259	1323	1386	1450	1513	1577	1640	1704	1767		
42	1831	1894	1958	2021	2085	2148	2212	2275	2338	2402		
43	2465	2529	2592	2656	2719	2783	2846	2910	2973	3037		
44	3100	3163	3227	3290	3354	3417	3481	3544	3608	3671		
45	3735	3798	3861	3925	3988	4052	4115	4179	4242	4306		
46	4369	4432	4496	4559	4623	4686	4750	4813	4876	4940		
47	5003	5067	5130	5194	5257	5320	5384	5447	5511	5574		
48	5638	5701	5764	5828	5891	5955	6018	6081	6145	6208		
49	6272	6335	6398	6462	6525	6589	6652	6716	6779	6842		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

64

1	6
2	13
3	19
4	26
5	32
6	38
7	45
8	51
9	58

63

1	6
2	13
3	19
4	25
5	32
6	38
7	44
8	50
9	57

(124)

LOGARITHMS

N. 685 L. 835

N	0	1	2	3	4	5	6	7	8	9	D	Pro
6850	8356906	6969	7033	7096	7159	7223	7286	7349	7413	7476		
51	7540	7603	7666	7730	7793	7857	7920	7983	8047	8110		
52	8174	8237	8300	8364	8427	8490	8554	8617	8681	8744		
53	8807	8871	8934	8997	9061	9124	9188	9251	9314	9378		
54	9441	9504	9568	9631	9694	9758	9821	9885	9948	0011		
55	8360075	0138	0201	0265	0328	0391	0455	0518	0581	0645		
56	0708	0771	0835	0898	0961	1025	1088	1151	1215	1278		
57	1341	1405	1468	1531	1595	1658	1721	1785	1848	1911		
58	1975	2038	2101	2165	2228	2291	2355	2418	2481	2545		
59	2608	2671	2735	2798	2861	2925	2988	3051	3115	3178		
6860	3241	3304	3368	3431	3494	3558	3621	3684	3748	3811		
61	3874	3937	4001	4064	4127	4191	4254	4317	4381	4444		
62	4507	4570	4634	4697	4760	4824	4887	4950	5013	5077		
63	5140	5203	5267	5330	5393	5456	5520	5583	5646	5709		
64	5773	5836	5899	5963	6026	6089	6152	6216	6279	6342		
65	6405	6469	6532	6595	6658	6722	6785	6848	6911	6975		
66	7038	7101	7164	7228	7291	7354	7417	7481	7544	7607		
67	7670	7734	7797	7860	7923	7987	8050	8113	8176	8240		
68	8303	8366	8429	8493	8556	8619	8682	8745	8809	8872		
69	8935	8998	9062	9125	9188	9251	9314	9378	9441	9504		
6870	9567	9631	9694	9757	9820	9883	9947	0010	0073	0136		
71	8370199	0263	0326	0389	0452	0516	0579	0642	0705	0768		
72	0832	0895	0958	1021	1084	1147	1211	1274	1337	1400		
73	1463	1527	1590	1653	1716	1779	1843	1906	1969	2032		
74	2095	2158	2222	2285	2348	2411	2474	2538	2601	2664		
75	2727	2790	2853	2917	2980	3043	3106	3169	3232	3296		
76	3359	3422	3485	3548	3611	3674	3738	3801	3864	3927		
77	3990	4053	4117	4180	4243	4306	4369	4432	4495	4559		
78	4622	4685	4748	4811	4874	4937	5001	5064	5127	5190		
79	5253	5316	5379	5442	5506	5569	5632	5695	5758	5821		
6880	5884	5948	6011	6074	6137	6200	6263	6326	6389	6452		
81	6516	6579	6642	6705	6768	6831	6894	6957	7020	7084		
82	7147	7210	7273	7336	7399	7462	7525	7588	7652	7715		
83	7778	7841	7904	7967	8030	8093	8156	8219	8282	8346		
84	8409	8472	8535	8598	8661	8724	8787	8850	8913	8976		
85	9039	9103	9166	9229	9292	9355	9418	9481	9544	9607		
86	9670	9733	9796	9859	9922	9986	0049	0112	0175	0238		
87	8380301	0364	0427	0490	0553	0616	0679	0742	0805	0868		
88	0931	0994	1057	1121	1184	1247	1310	1373	1436	1499		
89	1562	1625	1688	1751	1814	1877	1940	2003	2066	2129		
6890	2192	2255	2318	2381	2444	2507	2570	2633	2696	2759		
91	2822	2886	2949	3012	3075	3138	3201	3264	3327	3390		
92	3453	3516	3579	3642	3705	3768	3831	3894	3957	4020		
93	4083	4146	4209	4272	4335	4398	4461	4524	4587	4650		
94	4713	4776	4839	4902	4965	5028	5091	5154	5217	5280		
95	5343	5406	5469	5532	5595	5658	5721	5784	5847	5910		
96	5973	6036	6098	6161	6224	6287	6350	6413	6476	6539		
97	6602	6665	6728	6791	6854	6917	6980	7043	7106	7169		
98	7232	7295	7358	7421	7484	7547	7610	7673	7736	7798		
99	7861	7924	7987	8050	8113	8176	8239	8302	8365	8428		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

64

1	6
2	13
3	19
4	26
5	32
6	38
7	45
8	51
9	58

63

1	6
2	13
3	19
4	25
5	32
6	38
7	44
8	50
9	57

63

N	O	I	2	3	4	5	6	7	8	9	D	Pro
6900	8388491	8554	8617	8680	8743	8806	8869	8931	8994	9057		
01	9120	9183	9246	9309	9372	9435	9498	9561	9624	9687		
02	9750	9812	9875	9938	0001	0064	0127	0190	0253	0316		
03	8390379	0442	0505	0567	0630	0693	0756	0819	0882	0945		
04	1008	1071	1134	1197	1259	1322	1385	1448	1511	1574		
05	1637	1700	1763	1826	1888	1951	2014	2077	2140	2203		
06	2266	2329	2392	2454	2517	2580	2643	2706	2769	2832		
07	2895	2957	3020	3083	3146	3209	3272	3335	3398	3460		
08	3523	3586	3649	3712	3775	3838	3900	3963	4026	4089		
09	4152	4215	4278	4341	4403	4466	4529	4592	4655	4718		
6910	4780	4843	4906	4969	5032	5095	5158	5220	5283	5346		63
11	5409	5472	5535	5597	5660	5723	5786	5849	5912	5974		6
12	6037	6100	6163	6226	6289	6351	6414	6477	6540	6603		13
13	6666	6728	6791	6854	6917	6980	7042	7105	7168	7231		19
14	7294	7357	7419	7482	7545	7608	7671	7733	7796	7859		25
15	7922	7985	8047	8110	8173	8236	8299	8361	8424	8487		32
16	8550	8613	8675	8738	8801	8864	8927	8989	9052	9115		38
17	9178	9241	9303	9366	9429	9492	9554	9617	9680	9743		44
18	9806	9868	9931	9994	0057	0119	0182	0245	0308	0371		50
19	8400433	0496	0559	0622	0684	0747	0810	0873	0935	0998		57
6920	1061	1124	1186	1249	1312	1375	1437	1500	1563	1626		
21	1688	1751	1814	1877	1939	2002	2065	2128	2190	2253		
22	2316	2379	2441	2504	2567	2630	2692	2755	2818	2881		
23	2943	3006	3069	3132	3194	3257	3320	3382	3445	3508		
24	3571	3633	3696	3759	3821	3884	3947	4010	4072	4135		
25	4198	4260	4323	4386	4449	4511	4574	4637	4699	4762		
26	4825	4888	4950	5013	5076	5138	5201	5264	5326	5389		
27	5452	5515	5577	5640	5703	5765	5828	5891	5953	6016		
28	6079	6141	6204	6267	6330	6392	6455	6518	6580	6643		
29	6706	6768	6831	6894	6956	7019	7082	7144	7207	7270		
6930	7332	7395	7458	7520	7583	7646	7708	7771	7834	7896		62
31	7959	8022	8084	8147	8210	8272	8335	8398	8460	8523		6
32	8586	8648	8711	8773	8836	8899	8961	9024	9087	9149		12
33	9212	9275	9337	9400	9463	9525	9588	9650	9713	9776		19
34	9838	9901	9964	0026	0089	0152	0214	0277	0339	0402		25
35	8410465	0527	0590	0653	0715	0778	0840	0903	0966	1028		31
36	1091	1153	1216	1279	1341	1404	1467	1529	1592	1654		37
37	1717	1780	1842	1905	1967	2030	2093	2155	2218	2280		43
38	2343	2406	2468	2531	2593	2656	2719	2781	2844	2906		50
39	2969	3031	3094	3157	3219	3282	3344	3407	3470	3532		56
6940	3595	3657	3720	3782	3845	3908	3970	4033	4095	4158		
41	4220	4283	4346	4408	4471	4533	4596	4658	4721	4784		
42	4846	4909	4971	5034	5096	5159	5221	5284	5347	5409		
43	5472	5534	5597	5659	5722	5784	5847	5909	5972	6035		
44	6097	6160	6222	6285	6347	6410	6472	6535	6597	6660		
45	6723	6785	6848	6910	6973	7035	7098	7160	7223	7285		
46	7348	7410	7473	7535	7598	7660	7723	7785	7848	7910		
47	7973	8036	8098	8161	8223	8286	8348	8411	8473	8536		
48	8598	8661	8723	8786	8848	8911	8973	9036	9098	9161		
49	9223	9286	9348	9411	9473	9536	9598	9661	9723	9786		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

(126)

LOGARITHMS

N. 695 L. 841

N	0	1	2	3	4	5	6	7	8	9	D	Pro
6950	8419848	9911	9973	0036	0098	0160	0223	0285	0348	0410		
51	8420473	0535	0598	0660	0723	0785	0848	0910	0973	1035		
52	1098	1160	1223	1285	1348	1410	1472	1535	1597	1660		
53	1722	1785	1847	1910	1972	2035	2097	2160	2222	2284		
54	2347	2409	2472	2534	2597	2659	2722	2784	2846	2909		
55	2971	3034	3096	3159	3221	3284	3346	3408	3471	3533		
56	3596	3658	3721	3783	3845	3908	3970	4033	4095	4158		
57	4220	4282	4345	4407	4470	4532	4595	4657	4719	4782		
58	4844	4907	4969	5031	5094	5156	5219	5281	5344	5406		
59	5468	5531	5593	5656	5718	5780	5843	5905	5968	6030		
6960	6092	6155	6217	6280	6342	6404	6467	6529	6592	6654		
61	6716	6779	6841	6904	6966	7028	7091	7153	7215	7278		
62	7340	7403	7465	7527	7590	7652	7714	7777	7839	7902		
63	7964	8026	8089	8151	8213	8276	8338	8401	8463	8525		
64	8588	8650	8712	8775	8837	8899	8962	9024	9086	9149		
65	9211	9274	9336	9398	9461	9523	9585	9648	9710	9772		
66	9835	9897	9959	0022	0084	0146	0209	0271	0333	0396		
67	8430458	0520	0583	0645	0707	0770	0832	0894	0957	1019		
68	1081	1144	1206	1268	1331	1393	1455	1518	1580	1642		
69	1705	1767	1829	1892	1954	2016	2079	2141	2203	2265		
6970	2328	2390	2452	2515	2577	2639	2702	2764	2826	2889		
71	2951	3013	3075	3138	3200	3262	3325	3387	3449	3511		
72	3574	3636	3698	3761	3823	3885	3948	4010	4072	4134		
73	4197	4259	4321	4383	4446	4508	4570	4633	4695	4757		
74	4819	4882	4944	5006	5069	5131	5193	5255	5318	5380		
75	5442	5504	5567	5629	5691	5753	5816	5878	5940	6002		
76	6065	6127	6189	6251	6314	6376	6438	6500	6563	6625		
77	6687	6749	6812	6874	6936	6998	7061	7123	7185	7247		
78	7310	7372	7434	7496	7559	7621	7683	7745	7808	7870		
79	7932	7994	8056	8119	8181	8243	8305	8368	8430	8492		
6980	8554	8616	8679	8741	8803	8865	8928	8990	9052	9114		
81	9176	9239	9301	9363	9425	9487	9550	9612	9674	9736		
82	9798	9861	9923	9985	0047	0109	0172	0234	0296	0358		
83	8440420	0483	0545	0607	0669	0731	0794	0856	0918	0980		
84	1042	1104	1167	1229	1291	1353	1415	1478	1540	1602		
85	1664	1726	1788	1851	1913	1975	2037	2099	2161	2224		
86	2286	2348	2410	2472	2534	2597	2659	2721	2783	2845		
87	2907	2970	3032	3094	3156	3218	3280	3343	3405	3467		
88	3529	3591	3653	3715	3778	3840	3902	3964	4026	4088		
89	4150	4213	4275	4337	4399	4461	4523	4585	4647	4710		
6990	4772	4834	4896	4958	5020	5082	5145	5207	5269	5331		
91	5393	5455	5517	5579	5642	5704	5766	5828	5890	5952		
92	6014	6076	6138	6201	6263	6325	6387	6449	6511	6573		
93	6635	6697	6759	6822	6884	6946	7008	7070	7132	7194		
94	7256	7318	7380	7443	7505	7567	7629	7691	7753	7815		
95	7877	7939	8001	8063	8126	8188	8250	8312	8374	8436		
96	8498	8560	8622	8684	8746	8808	8870	8933	8995	9057		
97	9119	9181	9243	9305	9367	9429	9491	9553	9615	9677		
98	9739	9801	9863	9926	9988	0050	0112	0174	0236	0298		
99	8450360	0422	0484	0546	0608	0670	0732	0794	0856	0918		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

63
1 6
2 13
3 19
4 25
5 32
6 38
7 44
8 50
9 57

62
1 6
2 12
3 19
4 25
5 31
6 37
7 43
8 50
9 56

N. 700 L. 845

OF NUMBERS.

N	O	I	2	3	4	5	6	7	8	9	D	Pro
0000	8450980	1042	1104	1167	1229	1291	1353	1415	1477	1539		
01	1601	1663	1725	1787	1849	1911	1973	2035	2097	2159		
02	2221	2283	2345	2407	2469	2531	2593	2655	2717	2779		
03	2841	2903	2965	3027	3089	3151	3213	3275	3337	3399		
04	3461	3523	3585	3647	3709	3771	3833	3895	3957	4019	6z	
05	4081	4143	4205	4267	4329	4391	4453	4515	4577	4639		
06	4701	4763	4825	4887	4949	5011	5073	5135	5197	5259		
07	5321	5383	5445	5507	5569	5631	5693	5755	5817	5879		
08	5941	6003	6065	6127	6189	6251	6313	6375	6437	6499		
09	6561	6623	6685	6746	6808	6870	6932	6994	7056	7118		
7010	7180	7242	7304	7366	7428	7490	7552	7614	7676	7738		
11	7800	7862	7924	7986	8047	8109	8171	8233	8295	8357		
12	8419	8481	8543	8605	8667	8729	8791	8853	8915	8976		
13	9038	9100	9162	9224	9286	9348	9410	9472	9534	9596		
14	9658	9720	9781	9843	9905	9967	0029	0091	0153	0215		
15	8460277	0339	0401	0462	0524	0586	0648	0710	0772	0834		
16	0896	0958	1020	1082	1143	1205	1267	1329	1391	1453		
17	1515	1577	1639	1700	1762	1824	1886	1948	2010	2072		
18	2134	2196	2257	2319	2381	2443	2505	2567	2629	2691		
19	2752	2814	2876	2938	3000	3062	3124	3186	3247	3309		
7020	3371	3433	3495	3557	3619	3680	3742	3804	3866	3928		
21	3990	4052	4113	4175	4237	4299	4361	4423	4485	4546		
22	4608	4670	4732	4794	4856	4917	4979	5041	5103	5165		
23	5227	5289	5350	5412	5474	5536	5598	5660	5721	5783		
24	5845	5907	5969	6031	6092	6154	6216	6278	6340	6401		
25	6463	6525	6587	6649	6711	6772	6834	6896	6958	7020		
26	7081	7143	7205	7267	7329	7391	7452	7514	7576	7638		
27	7700	7761	7823	7885	7947	8009	8070	8132	8194	8256		
28	8318	8379	8441	8503	8565	8626	8688	8750	8812	8874		
29	8935	8997	9059	9121	9183	9244	9306	9368	9430	9491		
7030	9553	9615	9677	9739	9800	9862	9924	9986	0047	0109		
31	8470171	0233	0295	0356	0418	0480	0542	0603	0665	0727		
32	0789	0850	0912	0974	1036	1097	1159	1221	1283	1344		
33	1406	1468	1530	1591	1653	1715	1777	1838	1900	1962		
34	2024	2085	2147	2209	2271	2332	2394	2456	2518	2579		
35	2641	2703	2764	2826	2888	2950	3011	3073	3135	3197		
36	3258	3320	3382	3443	3505	3567	3629	3690	3752	3814		
37	3876	3937	3999	4061	4122	4184	4246	4307	4369	4431		
38	4493	4554	4616	4678	4739	4801	4863	4925	4986	5048		
39	5110	5171	5233	5295	5356	5418	5480	5542	5603	5665		
7040	5727	5788	5850	5912	5973	6035	6097	6158	6220	6282		
41	6343	6405	6467	6528	6590	6652	6714	6775	6837	6899		
42	6960	7022	7084	7145	7207	7269	7330	7392	7454	7515		
43	7577	7639	7700	7762	7824	7885	7947	8009	8070	8132		
44	8193	8255	8317	8378	8440	8502	8563	8625	8687	8748		
45	8810	8872	8933	8995	9057	9118	9180	9241	9303	9365		
46	9426	9488	9550	9611	9673	9735	9796	9858	9919	9981		
47	8480043	0104	0166	0228	0289	0351	0412	0474	0536	0597		
48	0659	0721	0782	0844	0905	0967	1029	1090	1152	1213		
49	1275	1337	1398	1460	1522	1583	1645	1706	1768	1830		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

6z

1	6
2	12
3	19
4	25
5	31
6	37
7	43
8	50
9	56

6x

1	6
2	12
3	18
4	24
5	31
6	37
7	43
8	49
9	55

(128)

LOGARITHMS

N. 705 L. 848

N	0	1	2	3	4	5	6	7	8	9	D	Pro
7050	8481891	1953	2014	2076	2138	2199	2261	2322	2384	2446		
51	2507	2569	2630	2692	2754	2815	2877	2938	3000	3061		
52	3123	3185	3246	3308	3369	3431	3493	3554	3616	3677		
53	3739	3800	3862	3924	3985	4047	4108	4170	4231	4293		
54	4355	4416	4478	4539	4601	4662	4724	4786	4847	4909		
55	4970	5032	5093	5155	5216	5278	5340	5401	5463	5524		
56	5586	5647	5709	5770	5832	5893	5955	6017	6078	6140		
57	6201	6263	6324	6386	6447	6509	6570	6632	6693	6755		
58	6817	6878	6940	7001	7063	7124	7186	7247	7309	7370		
59	7432	7493	7555	7616	7678	7739	7801	7862	7924	7985		
7060	8047	8109	8170	8232	8293	8355	8416	8478	8539	8601		
61	8662	8724	8785	8847	8908	8970	9031	9093	9154	9216		
62	9277	9339	9400	9462	9523	9585	9646	9708	9769	9831		
63	9892	9954	0015	0077	0138	0199	0261	0322	0384	0445		
64	8490507	0568	0630	0691	0753	0814	0876	0937	0999	1060		
65	1122	1183	1245	1306	1368	1429	1490	1552	1613	1675		
66	1736	1798	1859	1921	1982	2044	2105	2167	2228	2289		
67	2351	2412	2474	2535	2597	2658	2720	2781	2843	2904		
68	2965	3027	3088	3150	3211	3273	3334	3396	3457	3518		
69	3580	3641	3703	3764	3826	3887	3948	4010	4071	4133		
7070	4194	4256	4317	4378	4440	4501	4563	4624	4686	4747		
71	4808	4870	4931	4993	5054	5115	5177	5238	5300	5361		
72	5423	5484	5545	5607	5668	5730	5791	5852	5914	5975		
73	6037	6098	6159	6221	6282	6344	6405	6466	6528	6589		
74	6651	6712	6773	6835	6896	6958	7019	7080	7142	7203		
75	7264	7326	7387	7449	7510	7571	7633	7694	7755	7817		
76	7878	7940	8001	8062	8124	8185	8246	8308	8369	8431		
77	8492	8553	8615	8676	8737	8799	8860	8922	8983	9044		
78	9106	9167	9228	9290	9351	9412	9474	9535	9596	9658		
79	9719	9780	9842	9903	9965	0026	0087	0149	0210	0271		
7080	8500333	0394	0455	0517	0578	0639	0701	0762	0823	0885		
81	0946	1007	1069	1130	1191	1253	1314	1375	1437	1498		
82	1559	1621	1682	1743	1805	1866	1927	1988	2050	2111		
83	2172	2234	2295	2356	2418	2479	2540	2602	2663	2724		
84	2786	2847	2908	2969	3031	3092	3153	3215	3276	3337		
85	3399	3460	3521	3582	3644	3705	3766	3828	3889	3950		
86	4011	4073	4134	4195	4257	4318	4379	4440	4502	4563		
87	4624	4686	4747	4808	4869	4931	4992	5053	5115	5176		
88	5237	5298	5360	5421	5482	5543	5605	5666	5727	5788		
89	5850	5911	5972	6034	6095	6156	6217	6279	6340	6401		
7090	6462	6524	6585	6646	6707	6769	6830	6891	6952	7014		
91	7075	7136	7197	7259	7320	7381	7442	7504	7565	7626		
92	7687	7749	7810	7871	7932	7993	8055	8116	8177	8238		
93	8300	8361	8422	8483	8545	8606	8667	8728	8789	8851		
94	8912	8973	9034	9095	9157	9218	9279	9340	9402	9463		
95	9524	9585	9646	9708	9769	9830	9891	9952	0014	0075		
96	8510136	0197	0258	0320	0381	0442	0503	0564	0626	0687		
97	0748	0809	0870	0932	0993	1054	1115	1176	1238	1299		
98	1360	1421	1482	1544	1605	1666	1727	1788	1849	1911		
99	1972	2033	2094	2155	2216	2278	2339	2400	2461	2522		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

62

1	6
2	12
3	19
4	25
5	31
6	37
7	43
8	50
9	56

61

1	6
2	12
3	18
4	24
5	31
6	37
7	43
8	49
9	55

N	O	I	2	3	4	5	6	7	8	9	D	Pro
7200	8573325	3385	3446	3506	3566	3627	3687	3747	3807	3868		
01	3928	3988	4049	4109	4169	4230	4290	4350	4411	4471		
02	4531	4591	4652	4712	4772	4833	4893	4953	5014	5074		
03	5134	5194	5255	5315	5375	5436	5496	5556	5616	5677		
04	5737	5797	5858	5918	5978	6038	6099	6159	6219	6280		
05	6340	6400	6460	6521	6581	6641	6701	6762	6822	6882		
06	6943	7003	7063	7123	7184	7244	7304	7364	7425	7485		
07	7545	7605	7666	7726	7786	7847	7907	7967	8027	8088		
08	8148	8208	8268	8329	8389	8449	8509	8570	8630	8690		
09	8750	8810	8871	8931	8991	9051	9112	9172	9232	9292		
7210	9353	9413	9473	9533	9594	9654	9714	9774	9835	9895		
11	9955	0015	0075	0136	0196	0256	0316	0377	0437	0497		
12	8580557	0617	0678	0738	0798	0858	0918	0979	1039	1099		
13	1159	1220	1280	1340	1400	1460	1521	1581	1641	1701		
14	1761	1822	1882	1942	2002	2062	2123	2183	2243	2303		
15	2363	2424	2484	2544	2604	2664	2724	2785	2845	2905		
16	2965	3025	3086	3146	3206	3266	3326	3387	3447	3507		
17	3567	3627	3687	3748	3808	3868	3928	3988	4048	4109		
18	4169	4229	4289	4349	4409	4470	4530	4590	4650	4710		
19	4770	4831	4891	4951	5011	5071	5131	5192	5252	5312		
7220	5372	5432	5492	5552	5613	5673	5733	5793	5853	5913		
21	5973	6034	6094	6154	6214	6274	6334	6394	6455	6515		
22	6575	6635	6695	6755	6815	6876	6936	6996	7056	7116		
23	7176	7236	7296	7357	7417	7477	7537	7597	7657	7717		
24	7777	7837	7898	7958	8018	8078	8138	8198	8258	8318		
25	8379	8439	8499	8559	8619	8679	8739	8799	8859	8919		
26	8980	9040	9100	9160	9220	9280	9340	9400	9460	9520		
27	9581	9641	9701	9761	9821	9881	9941	0001	0061	0121		
28	8590181	0242	0302	0362	0422	0482	0542	0602	0662	0722		
29	0782	0842	0902	0962	1023	1083	1143	1203	1263	1323		
7230	1383	1443	1503	1563	1623	1683	1743	1803	1863	1924		
31	1984	2044	2104	2164	2224	2284	2344	2404	2464	2524		
32	2584	2644	2704	2764	2824	2884	2944	3005	3065	3125		
33	3185	3245	3305	3365	3425	3485	3545	3605	3665	3725		
34	3785	3845	3905	3965	4025	4085	4145	4205	4265	4325		
35	4385	4445	4505	4565	4625	4685	4746	4806	4866	4926		
36	4986	5046	5106	5166	5226	5286	5346	5406	5466	5526		
37	5586	5646	5706	5766	5826	5886	5946	6006	6066	6126		
38	6186	6246	6306	6366	6426	6486	6546	6606	6666	6726		
39	6786	6846	6906	6966	7026	7086	7146	7206	7266	7326		
7240	7386	7446	7506	7566	7626	7686	7746	7806	7866	7925		
41	7985	8045	8105	8165	8225	8285	8345	8405	8465	8525		
42	8585	8645	8705	8765	8825	8885	8945	9005	9065	9125		
43	9185	9245	9305	9365	9425	9485	9545	9605	9665	9724		
44	9784	9844	9904	9964	0024	0084	0144	0204	0264	0324		
45	8600384	0444	0504	0564	0624	0684	0744	0803	0863	0923		
46	0983	1043	1103	1163	1223	1283	1343	1403	1463	1523		
47	1583	1643	1702	1762	1822	1882	1942	2002	2062	2122		
48	2182	2242	2302	2362	2422	2481	2541	2601	2661	2721		
49	2781	2841	2901	2961	3021	3081	3140	3200	3260	3320		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

60

1	6
2	12
3	18
4	24
5	30
6	36
7	42
8	48
9	54

59

1	6
2	12
3	18
4	24
5	30
6	35
7	41
8	47
9	53

(132)

LOGARITHMS

N. 725 L. 860

N	0	1	2	3	4	5	6	7	8	9	D	Pro
7250	8603380	3440	3500	3560	3620	3680	3739	3799	3859	3919		
51	3979	4039	4099	4159	4219	4279	4338	4398	4458	4518		
52	4578	4638	4698	4758	4817	4877	4937	4997	5057	5117		
53	5177	5237	5297	5356	5416	5476	5536	5596	5656	5716		
54	5776	5835	5895	5955	6015	6075	6135	6195	6254	6314		
55	6374	6434	6494	6554	6614	6673	6733	6793	6853	6913		
56	6973	7033	7092	7152	7212	7272	7332	7392	7452	7511		
57	7571	7631	7691	7751	7811	7870	7930	7990	8050	8110		
58	8170	8229	8289	8349	8409	8469	8529	8588	8648	8708		
59	8768	8828	8888	8947	9007	9067	9127	9187	9247	9306		
7260	9366	9426	9486	9546	9605	9665	9725	9785	9845	9905		
61	9964	0024	0084	0144	0204	0263	0323	0383	0443	0503		
62	8610562	0622	0682	0742	0802	0861	0921	0981	1041	1101		
63	1160	1220	1280	1340	1400	1459	1519	1579	1639	1699		
64	1758	1818	1878	1938	1997	2057	2117	2177	2237	2296		
65	2356	2416	2476	2536	2595	2655	2715	2775	2834	2894		
66	2954	3014	3073	3133	3193	3253	3313	3372	3432	3492		
67	3552	3611	3671	3731	3791	3850	3910	3970	4030	4089		
68	4149	4209	4269	4328	4388	4448	4508	4567	4627	4687		
69	4747	4806	4866	4926	4986	5045	5105	5165	5225	5284		
7270	5344	5404	5464	5523	5583	5643	5703	5762	5822	5882		
71	5941	6001	6061	6121	6180	6240	6300	6360	6419	6479		
72	6539	6598	6658	6718	6778	6837	6897	6957	7016	7076		
73	7136	7196	7255	7315	7375	7434	7494	7554	7614	7673		
74	7733	7793	7852	7912	7972	8031	8091	8151	8211	8270		
75	8330	8390	8449	8509	8569	8628	8688	8748	8808	8867		
76	8927	8987	9046	9106	9166	9225	9285	9345	9404	9464		
77	9524	9583	9643	9703	9762	9822	9882	9941	0001	0061		
78	8620121	0180	0240	0300	0359	0419	0479	0538	0598	0658		
79	0717	0777	0837	0896	0956	1016	1075	1135	1194	1254		
7280	1314	1373	1433	1493	1552	1612	1672	1731	1791	1851		
81	1910	1970	2030	2089	2149	2209	2268	2328	2387	2447		
82	2507	2566	2626	2686	2745	2805	2865	2924	2984	3043		
83	3103	3163	3222	3282	3342	3401	3461	3520	3580	3640		
84	3699	3759	3819	3878	3938	3997	4057	4117	4176	4236		
85	4296	4355	4415	4474	4534	4594	4653	4713	4772	4832		
86	4892	4951	5011	5070	5130	5190	5249	5309	5368	5428		
87	5488	5547	5607	5666	5726	5786	5845	5905	5964	6024		
88	6084	6143	6203	6262	6322	6382	6441	6501	6560	6620		
89	6680	6739	6799	6858	6918	6977	7037	7097	7156	7216		
7290	7275	7335	7394	7454	7514	7573	7633	7692	7752	7811		
91	7871	7931	7990	8050	8109	8169	8228	8288	8347	8407		
92	8467	8526	8586	8645	8705	8764	8824	8883	8943	9003		
93	9062	9122	9181	9241	9300	9360	9419	9479	9539	9598		
94	9658	9717	9777	9836	9896	9955	0015	0074	0134	0193		
95	8630253	0312	0372	0432	0491	0551	0610	0670	0729	0789		
96	0848	0908	0967	1027	1086	1146	1205	1265	1324	1384		
97	1443	1503	1562	1622	1682	1741	1801	1860	1920	1979		
98	2039	2098	2158	2217	2277	2336	2396	2455	2515	2574		
99	2634	2693	2753	2812	2872	2931	2991	3050	3110	3169		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

60

1	6
2	12
3	18
4	24
5	30
6	36
7	42
8	48
9	54

59

1	6
2	12
3	18
4	24
5	30
6	36
7	42
8	48
9	54

N	O	I	2	3	4	5	6	7	8	9	D	Pro
7300	8633229	3288	3348	3407	3467	3526	3586	3645	3705	3764		
01	3823	3883	3942	4002	4061	4121	4180	4240	4299	4359		
02	4418	4478	4537	4597	4656	4716	4775	4835	4894	4954		
03	5013	5072	5132	5191	5251	5310	5370	5429	5489	5548		
04	5608	5667	5727	5786	5845	5905	5964	6024	6083	6143		
05	6202	6262	6321	6381	6440	6499	6559	6618	6678	6737		
06	6797	6856	6916	6975	7034	7094	7153	7213	7272	7332		
07	7391	7451	7510	7569	7629	7688	7748	7807	7867	7926		
08	7985	8045	8104	8164	8223	8283	8342	8401	8461	8520		
09	8580	8639	8698	8758	8817	8877	8936	8996	9055	9114		
7310	9174	9233	9293	9352	9411	9471	9530	9590	9649	9708		
11	9768	9827	9887	9946	0005	0065	0124	0184	0243	0302		60
12	8640362	0421	0481	0540	0599	0659	0718	0778	0837	0896		1 6
13	0956	1015	1075	1134	1193	1253	1312	1371	1431	1490		2 12
14	1550	1609	1668	1728	1787	1846	1906	1965	2025	2084		3 18
15	2143	2203	2262	2321	2381	2440	2500	2559	2618	2678		4 24
16	2737	2796	2856	2915	2974	3034	3093	3152	3212	3271		5 30
17	3331	3390	3449	3509	3568	3627	3687	3746	3805	3865		6 36
18	3924	3983	4043	4102	4161	4221	4280	4339	4399	4458		7 42
19	4517	4577	4636	4695	4755	4814	4873	4933	4992	5051		8 48
7320	5111	5170	5229	5289	5348	5407	5467	5526	5585	5645		9 54
21	5704	5763	5823	5882	5941	6001	6060	6119	6179	6238		
22	6297	6357	6416	6475	6534	6594	6653	6712	6772	6831		
23	6890	6950	7009	7068	7128	7187	7246	7305	7365	7424		
24	7483	7543	7602	7661	7721	7780	7839	7898	7958	8017		
25	8076	8136	8195	8254	8313	8373	8432	8491	8551	8610		
26	8669	8728	8788	8847	8906	8966	9025	9084	9143	9203		
27	9262	9321	9380	9440	9499	9558	9618	9677	9736	9795		
28	9855	9914	9973	0032	0092	0151	0210	0269	0329	0388		
29	8650447	0506	0566	0625	0684	0743	0803	0862	0921	0980		
7330	1040	1099	1158	1217	1277	1336	1395	1454	1514	1573		
31	1632	1691	1751	1810	1869	1928	1988	2047	2106	2165		59
32	2225	2284	2343	2402	2461	2521	2580	2639	2698	2758		1 6
33	2817	2876	2935	2995	3054	3113	3172	3231	3291	3350		2 12
34	3409	3468	3527	3587	3646	3705	3764	3824	3883	3942		3 18
35	4001	4060	4120	4179	4238	4297	4356	4416	4475	4534		4 24
36	4593	4652	4712	4771	4830	4889	4948	5008	5067	5126		5 30
37	5185	5244	5304	5363	5422	5481	5540	5600	5659	5718		6 36
38	5777	5836	5895	5955	6014	6073	6132	6191	6251	6310		7 42
39	6369	6428	6487	6546	6606	6665	6724	6783	6842	6901		8 48
7340	6961	7020	7079	7138	7197	7256	7316	7375	7434	7493		9 54
41	7552	7611	7671	7730	7789	7848	7907	7966	8025	8085		
42	8144	8203	8262	8321	8380	8440	8499	8558	8617	8676		
43	8735	8794	8854	8913	8972	9031	9090	9149	9208	9268		
44	9327	9386	9445	9504	9563	9622	9681	9741	9800	9859		
45	9918	9977	0036	0095	0155	0214	0273	0332	0391	0450		
46	8660509	0568	0627	0687	0746	0805	0864	0923	0982	1041		
47	1100	1160	1219	1278	1337	1396	1455	1514	1573	1632		
48	1691	1751	1810	1869	1928	1987	2046	2105	2164	2223		
49	2282	2342	2401	2460	2519	2578	2637	2696	2755	2814		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

134)

LOGARITHMS

N. 735 L. 866

N	0	1	2	3	4	5	6	7	8	9	D	Pro
7350	8662873	2932	2992	3051	3110	3169	3228	3287	3346	3405		
51	3464	3523	3582	3641	3701	3760	3819	3878	3937	3996		
52	4055	4114	4173	4232	4291	4350	4409	4468	4528	4587		
53	4646	4705	4764	4823	4882	4941	5000	5059	5118	5177		
54	5236	5295	5354	5413	5472	5532	5591	5650	5709	5768		
55	5827	5886	5945	6004	6063	6122	6181	6240	6299	6358		
56	6417	6476	6535	6594	6653	6712	6771	6830	6889	6949		
57	7008	7067	7126	7185	7244	7303	7362	7421	7480	7539		
58	7598	7657	7716	7775	7834	7893	7952	8011	8070	8129		
59	8188	8247	8306	8365	8424	8483	8542	8601	8660	8719		
7360	8778	8837	8896	8955	9014	9073	9132	9191	9250	9309	59	
61	9368	9427	9486	9545	9604	9663	9722	9781	9840	9899		59
62	9958	0017	0076	0135	0194	0253	0312	0371	0430	0489		1
63	8670548	0607	0666	0725	0784	0843	0902	0961	1020	1079		2
64	1138	1197	1256	1315	1374	1433	1492	1551	1610	1669		3
65	1728	1786	1845	1904	1963	2022	2081	2140	2199	2258		4
66	2317	2376	2435	2494	2553	2612	2671	2730	2789	2848		5
67	2907	2966	3025	3084	3142	3201	3260	3319	3378	3437		6
68	3496	3555	3614	3673	3732	3791	3850	3909	3968	4027		7
69	4086	4145	4203	4262	4321	4380	4439	4498	4557	4616		8
7370	4675	4734	4793	4852	4911	4970	5028	5087	5146	5205		9
71	5264	5323	5382	5441	5500	5559	5618	5677	5735	5794		59
72	5853	5912	5971	6030	6089	6148	6207	6266	6325	6383		1
73	6442	6501	6560	6619	6678	6737	6796	6855	6914	6972		2
74	7031	7090	7149	7208	7267	7326	7385	7444	7502	7561		3
75	7620	7679	7738	7797	7856	7915	7974	8032	8091	8150		4
76	8209	8268	8327	8386	8445	8503	8562	8621	8680	8739		5
77	8798	8857	8916	8974	9033	9092	9151	9210	9269	9328		6
78	9387	9445	9504	9563	9622	9681	9740	9799	9857	9916		7
79	9975	0034	0093	0152	0211	0269	0328	0387	0446	0505		8
7380	8680564	0622	0681	0740	0799	0858	0917	0976	1034	1093		9
81	1152	1211	1270	1329	1387	1446	1505	1564	1623	1682		58
82	1740	1799	1858	1917	1976	2035	2093	2152	2211	2270		1
83	2329	2388	2446	2505	2564	2623	2682	2740	2799	2858		2
84	2917	2976	3035	3093	3152	3211	3270	3329	3387	3446		3
85	3505	3564	3623	3681	3740	3799	3858	3917	3975	4034		4
86	4093	4152	4211	4269	4328	4387	4446	4505	4563	4622		5
87	4681	4740	4799	4857	4916	4975	5034	5093	5151	5210		6
88	5269	5328	5386	5445	5504	5563	5622	5680	5739	5798		7
89	5857	5915	5974	6033	6092	6151	6209	6268	6327	6386		8
7390	6444	6503	6562	6621	6679	6738	6797	6856	6915	6973		9
91	7032	7091	7150	7208	7267	7326	7385	7443	7502	7561		58
92	7620	7678	7737	7796	7855	7913	7972	8031	8090	8148		1
93	8207	8266	8325	8383	8442	8501	8560	8618	8677	8736		2
94	8794	8853	8912	8971	9029	9088	9147	9206	9264	9323		3
95	9382	9441	9499	9558	9617	9675	9734	9793	9852	9910		4
96	9969	0028	0086	0145	0204	0263	0321	0380	0439	0497		5
97	8690556	0615	0674	0732	0791	0850	0908	0967	1026	1085		6
98	1143	1202	1261	1319	1378	1437	1495	1554	1613	1672		7
99	1730	1789	1848	1906	1965	2024	2082	2141	2200	2259		8
N	0	1	2	3	4	5	6	7	8	9	D	Pts

N	O	I	2	3	4	5	6	7	8	9	D	Pro
7400	8692317	2376	2435	2493	2552	2611	2669	2728	2787	2845		
01	2904	2963	3021	3080	3139	3197	3256	3315	3373	3432		
02	3491	3549	3608	3667	3725	3784	3843	3901	3960	4019		
03	4077	4136	4195	4253	4312	4371	4429	4488	4547	4605		
04	4664	4723	4781	4840	4899	4957	5016	5075	5133	5192		
05	5251	5309	5368	5427	5485	5544	5603	5661	5720	5778		
06	5837	5896	5954	6013	6072	6130	6189	6248	6306	6365		
07	6423	6482	6541	6599	6658	6717	6775	6834	6892	6951		
08	7010	7068	7127	7186	7244	7303	7361	7420	7479	7537		
09	7596	7655	7713	7772	7830	7889	7948	8006	8065	8123		
7410	8182	8241	8299	8358	8417	8475	8534	8592	8651	8710		59
11	8768	8827	8885	8944	9003	9061	9120	9178	9237	9296		1
12	9354	9413	9471	9530	9588	9647	9706	9764	9823	9881		2
13	9940	9999	0057	0116	0174	0233	0292	0350	0409	0467		3
14	8700526	0584	0643	0702	0760	0819	0877	0936	0994	1053		4
15	1112	1170	1229	1287	1346	1404	1463	1522	1580	1639		5
16	1697	1756	1814	1873	1931	1990	2049	2107	2166	2224		6
17	2283	2341	2400	2458	2517	2576	2634	2693	2751	2810		7
18	2868	2927	2985	3044	3102	3161	3220	3278	3337	3395		8
19	3454	3512	3571	3629	3688	3746	3805	3863	3922	3981		9
7420	4039	4098	4156	4215	4273	4332	4390	4449	4507	4566		
21	4624	4683	4741	4800	4858	4917	4975	5034	5092	5151		
22	5210	5268	5327	5385	5444	5502	5561	5619	5678	5736		
23	5795	5853	5912	5970	6029	6087	6146	6204	6263	6321		
24	6380	6438	6497	6555	6614	6672	6731	6789	6848	6906		
25	6965	7023	7082	7140	7199	7257	7316	7374	7432	7491		
26	7549	7608	7666	7725	7783	7842	7900	7959	8017	8076		
27	8134	8193	8251	8310	8368	8427	8485	8544	8602	8660		
28	8719	8777	8836	8894	8953	9011	9070	9128	9187	9245		
29	9304	9362	9421	9479	9537	9596	9654	9713	9771	9830		
7430	9888	9947	0005	0063	0122	0180	0239	0297	0356	0414		
31	8710473	0531	0589	0648	0706	0765	0823	0882	0940	0999		
32	1057	1115	1174	1232	1291	1349	1408	1466	1524	1583		58
33	1641	1700	1758	1817	1875	1933	1992	2050	2109	2167		1
34	2226	2284	2342	2401	2459	2518	2576	2634	2693	2751		2
35	2810	2868	2927	2985	3043	3102	3160	3219	3277	3335		3
36	3394	3452	3511	3569	3627	3686	3744	3803	3861	3919		4
37	3978	4036	4095	4153	4211	4270	4328	4387	4445	4503		5
38	4562	4620	4679	4737	4795	4854	4912	4970	5029	5087		6
39	5146	5204	5262	5321	5379	5437	5496	5554	5613	5671		7
7440	5729	5788	5846	5904	5963	6021	6080	6138	6196	6255		
41	6313	6371	6430	6488	6546	6605	6663	6722	6780	6838		
42	6897	6955	7013	7072	7130	7188	7247	7305	7363	7422		
43	7480	7539	7597	7655	7714	7772	7830	7889	7947	8005		
44	8064	8122	8180	8239	8297	8355	8414	8472	8530	8589		
45	8647	8705	8764	8822	8880	8939	8997	9055	9114	9172		
46	9230	9289	9347	9405	9464	9522	9580	9639	9697	9755		
47	9814	9872	9930	9988	0047	0105	0163	0222	0280	0338		
48	8720397	0455	0513	0572	0630	0688	0747	0805	0863	0921		
49	0980	1038	1096	1155	1213	1271	1330	1388	1446	1504		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

(136)

LOGARITHMS

N. 745 L. 872

N	0	1	2	3	4	5	6	7	8	9	D	Pro
7450	8721	563	1621	1679	1738	1796	1854	1912	1971	2029	2087	
51	2146	2204	2262	2320	2379	2437	2495	2554	2612	2670		
52	2728	2787	2845	2903	2962	3020	3078	3136	3195	3253		
53	3311	3369	3428	3486	3544	3603	3661	3719	3777	3836		
54	3894	3952	4010	4069	4127	4185	4243	4302	4360	4418		
55	4476	4535	4593	4651	4709	4768	4826	4884	4942	5001		
56	5059	5117	5175	5234	5292	5350	5408	5467	5525	5583		
57	5641	5700	5758	5816	5874	5933	5991	6049	6107	6166		
58	6224	6282	6340	6398	6457	6515	6573	6631	6690	6748		
59	6806	6864	6923	6981	7039	7097	7155	7214	7272	7330		
7460	7388	7446	7505	7563	7621	7679	7738	7796	7854	7912		
61	7970	8029	8087	8145	8203	8261	8320	8378	8436	8494		
62	8552	8611	8669	8727	8785	8843	8902	8960	9018	9076		
63	9134	9193	9251	9309	9367	9425	9484	9542	9600	9658		
64	9716	9774	9833	9891	9949	0007	0065	0124	0182	0240		
65	8730	298	0356	0414	0473	0531	0589	0647	0705	0764	0822	
66	0880	0938	0996	1054	1113	1171	1229	1287	1345	1403		
67	1462	1520	1578	1636	1694	1752	1810	1869	1927	1985		
68	2043	2101	2159	2218	2276	2334	2392	2450	2508	2566		
69	2625	2683	2741	2799	2857	2915	2973	3032	3090	3148		
7470	3206	3264	3322	3380	3439	3497	3555	3613	3671	3729		
71	3787	3845	3904	3962	4020	4078	4136	4194	4252	4311		
72	4369	4427	4485	4543	4601	4659	4717	4775	4834	4892		
73	4950	5008	5066	5124	5182	5240	5298	5357	5415	5473		
74	5531	5589	5647	5705	5763	5821	5880	5938	5996	6054		
75	6112	6170	6228	6286	6344	6402	6461	6519	6577	6635		
76	6693	6751	6809	6867	6925	6983	7041	7100	7158	7216		
77	7274	7332	7390	7448	7506	7564	7622	7680	7738	7797		
78	7855	7913	7971	8029	8087	8145	8203	8261	8319	8377		
79	8435	8493	8551	8610	8668	8726	8784	8842	8900	8958		
7480	9016	9074	9132	9190	9248	9306	9364	9422	9480	9538		
81	9597	9655	9713	9771	9829	9887	9945	0003	0061	0119		
82	8740	0177	0235	0293	0351	0409	0467	0525	0583	0641	0699	
83	0757	0815	0874	0932	0990	1048	1106	1164	1222	1280		
84	1338	1396	1454	1512	1570	1628	1686	1744	1802	1860		
85	1918	1976	2034	2092	2150	2208	2266	2324	2382	2440		
86	2498	2556	2614	2672	2730	2788	2846	2904	2962	3020		
87	3078	3136	3194	3252	3310	3368	3426	3484	3542	3600		
88	3658	3716	3774	3832	3890	3948	4006	4064	4122	4180		
89	4238	4296	4354	4412	4470	4528	4586	4644	4702	4760		
7490	4818	4876	4934	4992	5050	5108	5166	5224	5282	5340		
91	5398	5456	5514	5572	5630	5688	5746	5804	5862	5920		
92	5978	6036	6094	6152	6210	6268	6325	6383	6441	6499		
93	6557	6615	6673	6731	6789	6847	6905	6963	7021	7079		
94	7137	7195	7253	7311	7369	7427	7485	7543	7600	7658		
95	7716	7774	7832	7890	7948	8006	8064	8122	8180	8238		
96	8296	8354	8412	8470	8528	8585	8643	8701	8759	8817		
97	8875	8933	8991	9049	9107	9165	9223	9281	9339	9396		
98	9454	9512	9570	9628	9686	9744	9802	9860	9918	9976		
99	8750	0034	0091	0149	0207	0265	0323	0381	0439	0497	0555	
N	0	1	2	3	4	5	6	7	8	9	D	Pro

58

1	6
2	12
3	17
4	23
5	29
6	35
7	41
8	46
9	5

57

1	6
2	11
3	17
4	23
5	29
6	34
7	40
8	46
9	51

58

N. 750 L. 875

OF NUMBERS.

(137)

N	O	I	2	3	4	5	6	7	8	9	D	Pro
7500	8750613	0671	0728	0786	0844	0902	0960	1018	1076	1134		
01	1192	1250	1307	1365	1423	1481	1539	1597	1655	1713		
02	1771	1828	1886	1944	2002	2060	2118	2176	2234	2292		
03	2349	2407	2465	2523	2581	2639	2697	2755	2813	2870		
04	2928	2986	3044	3102	3160	3218	3275	3333	3391	3449		
05	3507	3565	3623	3681	3738	3796	3854	3912	3970	4028		
06	4086	4143	4201	4259	4317	4375	4433	4491	4548	4606		
07	4664	4722	4780	4838	4896	4953	5011	5069	5127	5185		
08	5243	5300	5358	5416	5474	5532	5590	5648	5705	5763		
09	5821	5879	5937	5995	6052	6110	6168	6226	6284	6342		
7510	6399	6457	6515	6573	6631	6689	6746	6804	6862	6920		
11	6978	7035	7093	7151	7209	7267	7325	7382	7440	7498		
12	7556	7614	7671	7729	7787	7845	7903	7960	8018	8076		
13	8134	8192	8249	8307	8365	8423	8481	8539	8596	8654		
14	8712	8770	8828	8885	8943	9001	9059	9116	9174	9232		
15	9290	9348	9405	9463	9521	9579	9637	9694	9752	9810		
16	9868	9925	9983	0041	0099	0157	0214	0272	0330	0388		
17	8760446	0503	0561	0619	0677	0734	0792	0850	0908	0965		
18	1023	1081	1139	1197	1254	1312	1370	1428	1485	1543		
19	1601	1659	1716	1774	1832	1890	1947	2005	2063	2121		
7520	2178	2236	2294	2352	2409	2467	2525	2583	2640	2698		
21	2756	2814	2871	2929	2987	3045	3102	3160	3218	3276		
22	3333	3391	3449	3506	3564	3622	3680	3737	3795	3853		
23	3911	3968	4026	4084	4142	4199	4257	4315	4372	4430		
24	4488	4546	4603	4661	4719	4776	4834	4892	4950	5007		
25	5065	5123	5180	5238	5296	5354	5411	5469	5527	5584		
26	5642	5700	5758	5815	5873	5931	5988	6046	6104	6161		
27	6219	6277	6335	6392	6450	6508	6565	6623	6681	6738		
28	6796	6854	6911	6969	7027	7085	7142	7200	7258	7315		
29	7373	7431	7488	7546	7604	7661	7719	7777	7834	7892		
7530	7950	8007	8065	8123	8180	8238	8296	8353	8411	8469		
31	8526	8584	8642	8699	8757	8815	8872	8930	8988	9045		
32	9103	9161	9218	9276	9334	9391	9449	9507	9564	9622		
33	9680	9737	9795	9853	9910	9968	0026	0083	0141	0199		
34	8770256	0314	0371	0429	0487	0544	0602	0660	0717	0775		
35	0833	0890	0948	1005	1063	1121	1178	1236	1294	1351		
36	1409	1467	1524	1582	1639	1697	1755	1812	1870	1928		
37	1985	2043	2100	2158	2216	2273	2331	2388	2446	2504		
38	2561	2619	2677	2734	2792	2849	2907	2965	3022	3080		
39	3137	3195	3253	3310	3368	3425	3483	3541	3598	3656		
7540	3713	3771	3829	3886	3944	4001	4059	4117	4174	4232		
41	4289	4347	4405	4462	4520	4577	4635	4693	4750	4808		
42	4865	4923	4980	5038	5096	5153	5211	5268	5326	5384		
43	5441	5499	5556	5614	5671	5729	5787	5844	5902	5959		
44	6017	6074	6132	6189	6247	6305	6362	6420	6477	6535		
45	6592	6650	6708	6765	6823	6880	6938	6995	7053	7110		
46	7168	7226	7283	7341	7398	7456	7513	7571	7628	7686		
47	7743	7801	7859	7916	7974	8031	8089	8146	8204	8261		
48	8319	8376	8434	8492	8549	8607	8664	8722	8779	8837		
49	8894	8952	9009	9067	9124	9182	9239	9297	9354	9412		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

58

1	6
2	12
3	17
4	23
5	29
6	35
7	41
8	46
9	52

57

1	6
2	11
3	17
4	23
5	29
6	34
7	40
8	46
9	51

(138)

LOGARITHMS

N. 755 L. 877

N	0	1	2	3	4	5	6	7	8	9	D	Pro
7550	8779470	9527	9585	9642	9700	9757	9815	9872	9930	9987		
51	8780045	0102	0160	0217	0275	0332	0390	0447	0505	0562		
52	0620	0677	0735	0792	0850	0907	0965	1022	1080	1137		
53	1195	1252	1310	1367	1425	1482	1540	1597	1655	1712		
54	1770	1827	1885	1942	2000	2057	2115	2172	2230	2287		
55	2345	2402	2460	2517	2575	2632	2690	2747	2805	2862		
56	2919	2977	3034	3092	3149	3207	3264	3322	3379	3437		
57	3494	3552	3609	3667	3724	3782	3839	3896	3954	4011		
58	4069	4126	4184	4241	4299	4356	4414	4471	4529	4586		
59	4643	4701	4758	4816	4873	4931	4988	5046	5103	5161		
7560	5218	5275	5333	5390	5448	5505	5563	5620	5678	5735		
61	5792	5850	5907	5965	6022	6080	6137	6194	6252	6309		
62	6367	6424	6482	6539	6596	6654	6711	6769	6826	6884		
63	6941	6998	7056	7113	7171	7228	7286	7343	7400	7458		
64	7515	7573	7630	7687	7745	7802	7860	7917	7975	8032		
65	8089	8147	8204	8262	8319	8376	8434	8491	8549	8606		
66	8663	8721	8778	8836	8893	8950	9008	9065	9123	9180		
67	9237	9295	9352	9410	9467	9524	9582	9639	9696	9754		
68	9811	9869	9926	9983	0041	0098	0156	0213	0270	0328		
69	8790385	0442	0500	0557	0615	0672	0729	0787	0844	0901		
7570	0959	1016	1074	1131	1188	1246	1303	1360	1418	1475		
71	1532	1590	1647	1705	1762	1819	1877	1934	1991	2049		
72	2106	2163	2221	2278	2335	2393	2450	2508	2565	2622		
73	2680	2737	2794	2852	2909	2966	3024	3081	3138	3196		
74	3253	3310	3368	3425	3482	3540	3597	3654	3712	3769		
75	3826	3884	3941	3998	4056	4113	4170	4228	4285	4342		
76	4400	4457	4514	4572	4629	4686	4744	4801	4858	4916		
77	4973	5030	5088	5145	5202	5259	5317	5374	5431	5489		
78	5546	5603	5661	5718	5775	5833	5890	5947	6004	6062		
79	6119	6176	6234	6291	6348	6406	6463	6520	6577	6635		
7580	6692	6749	6807	6864	6921	6979	7036	7093	7150	7208		
81	7265	7322	7380	7437	7494	7551	7609	7666	7723	7781		
82	7838	7895	7952	8010	8067	8124	8181	8239	8296	8353		
83	8411	8468	8525	8582	8640	8697	8754	8811	8869	8926		
84	8983	9041	9098	9155	9212	9270	9327	9384	9441	9499		
85	9556	9613	9670	9728	9785	9842	9899	9957	0014	0071		
86	8800128	0186	0243	0300	0357	0415	0472	0529	0586	0644		
87	0701	0758	0815	0873	0930	0987	1044	1102	1159	1216		
88	1273	1330	1388	1445	1502	1559	1617	1674	1731	1788		
89	1846	1903	1960	2017	2074	2132	2189	2246	2303	2361		
7590	2418	2475	2532	2589	2647	2704	2761	2818	2875	2933		
91	2990	3047	3104	3162	3219	3276	3333	3390	3448	3505		
92	3562	3619	3676	3734	3791	3848	3905	3962	4020	4077		
93	4134	4191	4248	4306	4363	4420	4477	4534	4592	4649		
94	4706	4763	4820	4877	4935	4992	5049	5106	5163	5221		
95	5278	5335	5392	5449	5507	5564	5621	5678	5735	5792		
96	5850	5907	5964	6021	6078	6135	6193	6250	6307	6364		
97	6421	6478	6536	6593	6650	6707	6764	6821	6879	6936		
98	6993	7050	7107	7164	7222	7279	7336	7393	7450	7507		
99	7564	7622	7679	7736	7793	7850	7907	7964	8022	8079		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

58

1	6
2	12
3	17
4	23
5	29
6	35
7	41
8	46
9	52

57

1	6
2	11
3	17
4	23
5	29
6	34
7	40
8	46
9	51

N	0	1	2	3	4	5	6	7	8	9	D	Pro
7600	8808136	8193	8250	8307	8364	8422	8479	8536	8593	8650		
01	8707	8764	8822	8879	8936	8993	9050	9107	9164	9222		
02	9279	9336	9393	9450	9507	9564	9621	9679	9736	9793		
03	9850	9907	9964	0021	0078	0136	0193	0250	0307	0364		
04	8810421	0478	0535	0592	0650	0707	0764	0821	0878	0935		
05	0992	1049	1106	1163	1221	1278	1335	1392	1449	1506		
06	1563	1620	1677	1735	1792	1849	1906	1963	2020	2077		
07	2134	2191	2248	2305	2363	2420	2477	2534	2591	2648		
08	2705	2762	2819	2876	2933	2990	3048	3105	3162	3219		
09	3276	3333	3390	3447	3504	3561	3618	3675	3732	3789		
7610	3847	3904	3961	4018	4075	4132	4189	4246	4303	4360		
11	4417	4474	4531	4588	4645	4703	4760	4817	4874	4931		57
12	4988	5045	5102	5159	5216	5273	5330	5387	5444	5501		1 6
13	5558	5615	5672	5729	5786	5844	5901	5958	6015	6072		2 11
14	6129	6186	6243	6300	6357	6414	6471	6528	6585	6642		3 17
15	6699	6756	6813	6870	6927	6984	7041	7098	7155	7212		4 23
16	7269	7326	7383	7440	7497	7554	7611	7669	7726	7783		5 29
17	7840	7897	7954	8011	8068	8125	8182	8239	8296	8353		6 34
18	8410	8467	8524	8581	8638	8695	8752	8809	8866	8923		7 40
19	8980	9037	9094	9151	9208	9265	9322	9379	9436	9493	57	8 46
7620	9550	9607	9664	9721	9778	9835	9892	9949	0006	0063		9 51
21	8820120	0177	0234	0291	0348	0405	0462	0519	0575	0632		
22	0689	0746	0803	0860	0917	0974	1031	1088	1145	1202		
23	1259	1316	1373	1430	1487	1544	1601	1658	1715	1772		
24	1829	1886	1943	2000	2057	2114	2171	2228	2285	2342		
25	2398	2455	2512	2569	2626	2683	2740	2797	2854	2911		
26	2968	3025	3082	3139	3196	3253	3310	3367	3424	3481		
27	3537	3594	3651	3708	3765	3822	3879	3936	3993	4050		
28	4107	4164	4221	4278	4335	4392	4448	4505	4562	4619		
29	4676	4733	4790	4847	4904	4961	5018	5075	5132	5188		
7630	5245	5302	5359	5416	5473	5530	5587	5644	5701	5758		
31	5815	5871	5928	5985	6042	6099	6156	6213	6270	6327		56
32	6384	6441	6497	6554	6611	6668	6725	6782	6839	6896		1 6
33	6953	7010	7066	7123	7180	7237	7294	7351	7408	7465		2 11
34	7522	7578	7635	7692	7749	7806	7863	7920	7977	8034		3 17
35	8090	8147	8204	8261	8318	8375	8432	8489	8545	8602		4 23
36	8659	8716	8773	8830	8887	8944	9000	9057	9114	9171		5 29
37	9228	9285	9342	9399	9455	9512	9569	9626	9683	9740		6 34
38	9797	9853	9910	9967	0024	0081	0138	0195	0251	0308		7 39
39	8830365	0422	0479	0536	0593	0649	0706	0763	0820	0877		8 45
7640	0934	0990	1047	1104	1161	1218	1275	1331	1388	1445		9 50
41	1502	1559	1616	1673	1729	1786	1843	1900	1957	2014		
42	2070	2127	2184	2241	2298	2354	2411	2468	2525	2582		
43	2639	2695	2752	2809	2866	2923	2980	3036	3093	3150		
44	3207	3264	3320	3377	3434	3491	3548	3604	3661	3718		
45	3775	3832	3889	3945	4002	4059	4116	4173	4229	4286		
46	4343	4400	4457	4513	4570	4627	4684	4741	4797	4854		
47	4911	4968	5024	5081	5138	5195	5252	5308	5365	5422		
48	5479	5536	5592	5649	5706	5763	5819	5876	5933	5990		
49	6047	6103	6160	6217	6274	6330	6387	6444	6501	6558		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

(140)

LOGARITHMS

N. 765 L. 883

N	0	1	2	3	4	5	6	7	8	9	D	Pro
7650	8836614	6671	6728	6785	6841	6898	6955	7012	7068	7125		
51	7182	7239	7296	7352	7409	7466	7523	7579	7636	7693		
52	7750	7806	7863	7920	7977	8033	8090	8147	8204	8260		
53	8317	8374	8431	8487	8544	8601	8658	8714	8771	8828		
54	8885	8941	8998	9055	9112	9168	9225	9282	9338	9395		
55	9452	9509	9565	9622	9679	9736	9792	9849	9906	9963		
56	8840019	0076	0133	0189	0246	0303	0360	0416	0473	0530		
57	0586	0643	0700	0757	0813	0870	0927	0983	1040	1097		
58	1154	1210	1267	1324	1380	1437	1494	1551	1607	1664		
59	1721	1777	1834	1891	1948	2004	2061	2118	2174	2231		
7660	2288	2344	2401	2458	2514	2571	2628	2685	2741	2798		
61	2855	2911	2968	3025	3081	3138	3195	3251	3308	3365		
62	3421	3478	3535	3592	3648	3705	3762	3818	3875	3932		
63	3988	4045	4102	4158	4215	4272	4328	4385	4442	4498		
64	4555	4612	4668	4725	4782	4838	4895	4952	5008	5065		
65	5122	5178	5235	5292	5348	5405	5462	5518	5575	5631		
66	5688	5745	5801	5858	5915	5971	6028	6085	6141	6198		
67	6255	6311	6368	6425	6481	6538	6594	6651	6708	6764		
68	6821	6878	6934	6991	7048	7104	7161	7217	7274	7331		
69	7387	7444	7501	7557	7614	7671	7727	7784	7840	7897		
7670	7954	8010	8067	8124	8180	8237	8293	8350	8407	8463		
71	8520	8576	8633	8690	8746	8803	8860	8916	8973	9029		
72	9086	9143	9199	9256	9312	9369	9426	9482	9539	9595		
73	9652	9709	9765	9822	9878	9935	9992	0048	0105	0161		
74	8850218	0275	0331	0388	0444	0501	0557	0614	0671	0727		
75	0784	0840	0897	0954	1010	1067	1123	1180	1237	1293		
76	1350	1406	1463	1519	1576	1633	1689	1746	1802	1859		
77	1915	1972	2029	2085	2142	2198	2255	2311	2368	2425		
78	2481	2538	2594	2651	2707	2764	2820	2877	2934	2990		
79	3047	3103	3160	3216	3273	3329	3386	3443	3499	3556		
7680	3612	3669	3725	3782	3838	3895	3951	4008	4065	4121		
81	4178	4234	4291	4347	4404	4460	4517	4573	4630	4686		
82	4743	4800	4856	4913	4969	5026	5082	5139	5195	5252		
83	5308	5365	5421	5478	5534	5591	5647	5704	5761	5817		
84	5874	5930	5987	6043	6100	6156	6213	6269	6326	6382		
85	6439	6495	6552	6608	6665	6721	6778	6834	6891	6947		
86	7004	7060	7117	7173	7230	7286	7343	7399	7456	7512		
87	7569	7625	7682	7738	7795	7851	7908	7964	8021	8077		
88	8134	8190	8247	8303	8360	8416	8473	8529	8586	8642		
89	8699	8755	8812	8868	8925	8981	9037	9094	9150	9207		
7690	9263	9320	9376	9433	9489	9546	9602	9659	9715	9772		
91	9828	9885	9941	9998	0054	0110	0167	0223	0280	0336		
92	8860393	0449	0506	0562	0619	0675	0732	0788	0844	0901		
93	0957	1014	1070	1127	1183	1240	1296	1352	1409	1465		
94	1522	1578	1635	1691	1748	1804	1860	1917	1973	2030		
95	2086	2143	2199	2256	2312	2368	2425	2481	2538	2594		
96	2651	2707	2763	2820	2876	2933	2989	3046	3102	3158		
97	3215	3271	3328	3384	3441	3497	3553	3610	3666	3723		
98	3779	3835	3892	3948	4005	4061	4118	4174	4230	4287		
99	4343	4400	4456	4512	4569	4625	4682	4738	4794	4851		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

57

1	6
2	11
3	17
4	23
5	29
6	34
7	40
8	46
9	51

56

1	6
2	11
3	17
4	22
5	28
6	34
7	39
8	45
9	50

N	O	I	2	3	4	5	6	7	8	9	D	Pro
7700	8864907	4964	5020	5076	5133	5189	5246	5302	5358	5415		
01	5471	5528	5584	5640	5697	5753	5810	5866	5922	5979		
02	6035	6092	6148	6204	6261	6317	6373	6430	6486	6543		
03	6599	6655	6712	6768	6824	6881	6937	6994	7050	7106		
04	7163	7219	7275	7332	7388	7445	7501	7557	7614	7670		
05	7726	7783	7839	7896	7952	8008	8065	8121	8177	8234		
06	8290	8346	8403	8459	8515	8572	8628	8685	8741	8797		
07	8854	8910	8966	9023	9079	9135	9192	9248	9304	9361		
08	9417	9473	9530	9586	9642	9699	9755	9811	9868	9924		
09	9980	0037	0093	0149	0206	0262	0318	0375	0431	0487		
7710	8870544	0600	0656	0713	0769	0825	0882	0938	0994	1051		
11	1107	1163	1220	1276	1332	1389	1445	1501	1558	1614		57
12	1670	1727	1783	1839	1895	1952	2008	2064	2121	2177		6
13	2233	2290	2346	2402	2459	2515	2571	2627	2684	2740		11
14	2796	2853	2909	2965	3022	3078	3134	3190	3247	3303		17
15	3359	3416	3472	3528	3584	3641	3697	3753	3810	3866		23
16	3922	3978	4035	4091	4147	4204	4260	4316	4372	4429		29
17	4485	4541	4598	4654	4710	4766	4823	4879	4935	4991		34
18	5048	5104	5160	5217	5273	5329	5385	5442	5498	5554		40
19	5610	5667	5723	5779	5835	5892	5948	6004	6060	6117		46
7720	6173	6229	6286	6342	6398	6454	6511	6567	6623	6679		51
21	6736	6792	6848	6904	6961	7017	7073	7129	7185	7242		
22	7298	7354	7410	7467	7523	7579	7635	7692	7748	7804		
23	7860	7917	7973	8029	8085	8142	8198	8254	8310	8366		
24	8423	8479	8535	8591	8648	8704	8760	8816	8872	8929		
25	8985	9041	9097	9154	9210	9266	9322	9378	9435	9491		
26	9547	9603	9659	9716	9772	9828	9884	9941	9997	0053		
27	8880109	0165	0222	0278	0334	0390	0446	0503	0559	0615		
28	0671	0727	0784	0840	0896	0952	1008	1064	1121	1177		
29	1233	1289	1345	1402	1458	1514	1570	1626	1683	1739		
7730	1795	1851	1907	1963	2020	2076	2132	2188	2244	2301		56
31	2357	2413	2469	2525	2581	2638	2694	2750	2806	2862		6
32	2918	2975	3031	3087	3143	3199	3255	3312	3368	3424		11
33	3480	3536	3592	3649	3705	3761	3817	3873	3929	3986		17
34	4042	4098	4154	4210	4266	4322	4379	4435	4491	4547		22
35	4603	4659	4715	4772	4828	4884	4940	4996	5052	5108		28
36	5165	5221	5277	5333	5389	5445	5501	5558	5614	5670		34
37	5726	5782	5838	5894	5950	6007	6063	6119	6175	6231		39
38	6287	6343	6400	6456	6512	6568	6624	6680	6736	6792		45
39	6848	6905	6961	7017	7073	7129	7185	7241	7297	7353		50
7740	7410	7466	7522	7578	7634	7690	7746	7802	7858	7915		
41	7971	8027	8083	8139	8195	8251	8307	8363	8419	8476		
42	8532	8588	8644	8700	8756	8812	8868	8924	8980	9037		
43	9093	9149	9205	9261	9317	9373	9429	9485	9541	9597		
44	9653	9710	9766	9822	9878	9934	9990	0046	0102	0158		
45	8890214	0270	0326	0382	0439	0495	0551	0607	0663	0719		
46	0775	0831	0887	0943	0999	1055	1111	1167	1223	1279		
47	1336	1392	1448	1504	1560	1616	1672	1728	1784	1840		
48	1896	1952	2008	2064	2120	2176	2232	2288	2345	2401		
49	2457	2513	2569	2625	2681	2737	2793	2849	2905	2961		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

N	0	1	2	3	4	5	6	7	8	9	D	Pro
7750	8893017	3073	3129	3185	3241	3297	3353	3409	3465	3521	56	
51	3577	3633	3689	3745	3801	3858	3914	3970	4026	4082		
52	4138	4194	4250	4306	4362	4418	4474	4530	4586	4642		
53	4698	4754	4810	4866	4922	4978	5034	5090	5146	5202		
54	5258	5314	5370	5426	5482	5538	5594	5650	5706	5762		
55	5818	5874	5930	5986	6042	6098	6154	6210	6266	6322		
56	6378	6434	6490	6546	6602	6658	6714	6770	6826	6882		
57	6938	6994	7050	7106	7162	7218	7274	7330	7386	7442		
58	7498	7554	7610	7666	7722	7778	7834	7890	7946	8002		
59	8058	8113	8169	8225	8281	8337	8393	8449	8505	8561		
7760	8617	8673	8729	8785	8841	8897	8953	9009	9065	9121	57	
61	9177	9233	9289	9345	9401	9457	9513	9569	9624	9680		
62	9736	9792	9848	9904	9960	0016	0072	0128	0184	0240		
63	8900290	0352	0408	0464	0520	0576	0632	0687	0743	0799		
64	0855	0911	0967	1023	1079	1135	1191	1247	1303	1359		
65	1415	1471	1526	1582	1638	1694	1750	1806	1862	1918		
66	1974	2030	2086	2142	2198	2253	2309	2365	2421	2477		
67	2533	2589	2645	2701	2757	2813	2869	2924	2980	3036		
68	3092	3148	3204	3260	3316	3372	3428	3484	3539	3595		
69	3651	3707	3763	3819	3875	3931	3987	4043	4098	4154		
7770	4210	4266	4322	4378	4434	4490	4546	4601	4657	4713	58	
71	4769	4825	4881	4937	4993	5049	5104	5160	5216	5272		
72	5328	5384	5440	5496	5551	5607	5663	5719	5775	5831		
73	5887	5943	5998	6054	6110	6166	6222	6278	6334	6389		
74	6445	6501	6557	6613	6669	6725	6781	6836	6892	6948		
75	7004	7060	7116	7172	7227	7283	7339	7395	7451	7507		
76	7563	7618	7674	7730	7786	7842	7898	7953	8009	8065		
77	8121	8177	8233	8289	8344	8400	8456	8512	8568	8624		
78	8679	8735	8791	8847	8903	8959	9014	9070	9126	9182		
79	9238	9294	9349	9405	9461	9517	9573	9629	9684	9740		
7780	9796	9852	9908	9963	0019	0075	0131	0187	0243	0298	59	
81	8910354	0410	0466	0522	0577	0633	0689	0745	0801	0856		
82	0912	0968	1024	1080	1135	1191	1247	1303	1359	1415		
83	1470	1526	1582	1638	1694	1749	1805	1861	1917	1972		
84	2028	2084	2140	2196	2251	2307	2363	2419	2475	2530		
85	2586	2642	2698	2754	2809	2865	2921	2977	3032	3088		
86	3144	3200	3256	3311	3367	3423	3479	3534	3590	3646		
87	3702	3758	3813	3869	3925	3981	4036	4092	4148	4204		
88	4259	4315	4371	4427	4482	4538	4594	4650	4706	4761		
89	4817	4873	4929	4984	5040	5096	5152	5207	5263	5319		
7790	5375	5430	5486	5542	5598	5653	5709	5765	5821	5876	60	
91	5932	5988	6044	6099	6155	6211	6266	6322	6378	6434		
92	6489	6545	6601	6657	6712	6768	6824	6880	6935	6991		
93	7047	7102	7158	7214	7270	7325	7381	7437	7493	7548		
94	7604	7660	7715	7771	7827	7883	7938	7994	8050	8105		
95	8161	8217	8273	8328	8384	8440	8495	8551	8607	8663		
96	8718	8774	8830	8885	8941	8997	9053	9108	9164	9220		
97	9275	9331	9387	9442	9498	9554	9610	9665	9721	9777		
98	9832	9888	9944	9999	0055	0111	0166	0222	0278	0334		
99	8920389	0445	0501	0556	0612	0668	0723	0779	0835	0890		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

N	0	1	2	3	4	5	6	7	8	9	D	Pro
7800	8920946	1002	1057	1113	1169	1224	1280	1336	1391	1447		
01	1503	1558	1614	1670	1725	1781	1837	1892	1948	2004		
02	2059	2115	2171	2226	2282	2338	2393	2449	2505	2560		
03	2616	2672	2727	2783	2839	2894	2950	3006	3061	3117		
04	3173	3228	3284	3340	3395	3451	3506	3562	3618	3673		
05	3729	3785	3840	3896	3952	4007	4063	4119	4174	4230		
06	4285	4341	4397	4452	4508	4564	4619	4675	4731	4786		
07	4842	4897	4953	5009	5064	5120	5176	5231	5287	5342		
08	5398	5454	5509	5565	5621	5676	5732	5787	5843	5899		
09	5954	6010	6065	6121	6177	6232	6288	6344	6399	6455		
7810	6510	6566	6622	6677	6733	6788	6844	6900	6955	7011		
11	7066	7122	7178	7233	7289	7344	7400	7456	7511	7567		
12	7622	7678	7734	7789	7845	7900	7956	8011	8067	8123		56
13	8178	8234	8289	8345	8401	8456	8512	8567	8623	8678		1 6
14	8734	8790	8845	8901	8956	9012	9068	9123	9179	9234		2 11
15	9290	9345	9401	9457	9512	9568	9623	9679	9734	9790		3 17
16	9846	9901	9957	0012	0068	0123	0179	0234	0290	0346		4 22
17	8930401	0457	0512	0568	0623	0679	0734	0790	0846	0901		5 28
18	0957	1012	1068	1123	1179	1234	1290	1345	1401	1457		6 34
19	1512	1568	1623	1679	1734	1790	1845	1901	1956	2012		7 39
7820	2068	2123	2179	2234	2290	2345	2401	2456	2512	2567		8 45
21	2623	2678	2734	2789	2845	2900	2956	3012	3067	3123		9 50
22	3178	3234	3289	3345	3400	3456	3511	3567	3622	3678		
23	3733	3789	3844	3900	3955	4011	4066	4122	4177	4233		
24	4288	4344	4399	4455	4510	4566	4621	4677	4732	4788		
25	4843	4899	4954	5010	5065	5121	5176	5232	5287	5343		
26	5398	5454	5509	5565	5620	5676	5731	5787	5842	5898		
27	5953	6009	6064	6120	6175	6231	6286	6342	6397	6453		
28	6508	6564	6619	6675	6730	6786	6841	6897	6952	7007		
29	7063	7118	7174	7229	7285	7340	7396	7451	7507	7562		
7830	7618	7673	7729	7784	7839	7895	7950	8006	8061	8117		
31	8172	8228	8283	8339	8394	8450	8505	8560	8616	8671		
32	8727	8782	8838	8893	8949	9004	9059	9115	9170	9226		55
33	9281	9337	9392	9448	9503	9558	9614	9669	9725	9780		1 6
34	9836	9891	9947	0002	0057	0113	0168	0224	0279	0335		2 11
35	8940390	0445	0501	0556	0612	0667	0723	0778	0833	0889		3 17
36	0944	1000	1055	1111	1166	1221	1277	1332	1388	1443		4 22
37	1498	1554	1609	1665	1720	1776	1831	1886	1942	1997		5 28
38	2053	2108	2163	2219	2274	2330	2385	2440	2496	2551		6 33
39	2607	2662	2717	2773	2828	2884	2939	2994	3050	3105		7 39
7840	3161	3216	3271	3327	3382	3438	3493	3548	3604	3659		8 44
41	3715	3770	3825	3881	3936	3991	4047	4102	4158	4213		9 50
42	4268	4324	4379	4435	4490	4545	4601	4656	4711	4767		
43	4822	4878	4933	4988	5044	5099	5154	5210	5265	5320		
44	5376	5431	5487	5542	5597	5653	5708	5763	5819	5874		
45	5929	5985	6040	6096	6151	6206	6262	6317	6372	6428		
46	6483	6538	6594	6649	6704	6760	6815	6870	6926	6981		
47	7037	7092	7147	7203	7258	7313	7369	7424	7479	7535		
48	7590	7645	7701	7756	7811	7867	7922	7977	8033	8088		
49	8143	8199	8254	8309	8365	8420	8475	8531	8586	8641		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

(144)

LOGARITHMS

N. 785 L. 894

N	0	1	2	3	4	5	6	7	8	9	D	Pro
7850	8948697	8752	8807	8863	8918	8973	9028	9084	9139	9194		
51	9250	9305	9360	9416	9471	9526	9582	9637	9692	9748		
52	9803	9858	9914	9969	0024	0079	0135	0190	0245	0301		
53	8950356	0411	0467	0522	0577	0632	0688	0743	0798	0854		
54	0909	0964	1020	1075	1130	1185	1241	1296	1351	1407		
55	1462	1517	1572	1628	1683	1738	1794	1849	1904	1959		
56	2015	2070	2125	2181	2236	2291	2346	2402	2457	2512		
57	2568	2623	2678	2733	2789	2844	2899	2954	3010	3065		
58	3120	3176	3231	3286	3341	3397	3452	3507	3562	3618		
59	3673	3728	3783	3839	3894	3949	4004	4060	4115	4170		
7860	4225	4281	4336	4391	4446	4502	4557	4612	4667	4723		
61	4778	4833	4888	4944	4999	5054	5109	5165	5220	5275		
62	5330	5386	5441	5496	5551	5607	5662	5717	5772	5828		
63	5883	5938	5993	6048	6104	6159	6214	6269	6325	6380		
64	6435	6490	6545	6601	6656	6711	6766	6822	6877	6932		
65	6987	7042	7098	7153	7208	7263	7319	7374	7429	7484		
66	7539	7595	7650	7705	7760	7815	7871	7926	7981	8036		
67	8092	8147	8202	8257	8312	8368	8423	8478	8533	8588		
68	8644	8699	8754	8809	8864	8919	8975	9030	9085	9140		
69	9195	9251	9306	9361	9416	9471	9527	9582	9637	9692		
7870	9748	9803	9858	9913	9968	0023	0078	0134	0189	0244		
71	8960299	0354	0409	0465	0520	0575	0630	0685	0741	0796		
72	0851	0906	0961	1016	1072	1127	1182	1237	1292	1347		
73	1403	1458	1513	1568	1623	1678	1733	1789	1844	1899		
74	1954	2009	2064	2120	2175	2230	2285	2340	2395	2450		
75	2506	2561	2616	2671	2726	2781	2837	2892	2947	3002		
76	3057	3112	3167	3222	3278	3333	3388	3443	3498	3553		
77	3608	3664	3719	3774	3829	3884	3939	3994	4050	4105		
78	4160	4215	4270	4325	4380	4435	4491	4546	4601	4656		
79	4711	4766	4821	4876	4931	4987	5042	5097	5152	5207		
7880	5262	5317	5372	5428	5483	5538	5593	5648	5703	5758		
81	5813	5868	5923	5979	6034	6089	6144	6199	6254	6309		
82	6364	6419	6475	6530	6585	6640	6695	6750	6805	6860		
83	6915	6970	7025	7081	7136	7191	7246	7301	7356	7411		
84	7466	7521	7576	7631	7686	7742	7797	7852	7907	7962		
85	8017	8072	8127	8182	8237	8292	8347	8403	8458	8513		
86	8568	8623	8678	8733	8788	8843	8898	8953	9008	9063		
87	9118	9173	9229	9284	9339	9394	9449	9504	9559	9614		
88	9669	9724	9779	9834	9889	9944	9999	0054	0109	0165		
89	8970220	0275	0330	0385	0440	0495	0550	0605	0660	0715		
7890	0770	0825	0880	0935	0990	1045	1100	1155	1210	1265		
91	1320	1375	1431	1486	1541	1596	1651	1706	1761	1816		
92	1871	1926	1981	2036	2091	2146	2201	2256	2311	2366		
93	2421	2476	2531	2586	2641	2696	2751	2806	2861	2916		
94	2971	3026	3081	3136	3191	3246	3301	3356	3411	3466		
95	3521	3576	3631	3686	3741	3796	3851	3906	3961	4016		
96	4071	4126	4181	4236	4291	4346	4401	4456	4511	4566		
97	4621	4676	4731	4786	4841	4896	4951	5006	5061	5116		
98	5171	5226	5281	5336	5391	5446	5501	5556	5611	5666		
99	5721	5776	5831	5886	5941	5996	6051	6106	6161	6216		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

56

1	6
2	11
3	17
4	22
5	28
6	34
7	39
8	45
9	50

55

1	6
2	11
3	17
4	22
5	28
6	33
7	39
8	44
9	50

55

N	O	1	2	3	4	5	6	7	8	9	D	Pro
7900	8976271	6326	6381	6436	6491	6546	6601	6656	6711	6766		
01	6821	6876	6931	6986	7040	7095	7150	7205	7260	7315		
02	7370	7425	7480	7535	7590	7645	7700	7755	7810	7865		
03	7920	7975	8030	8085	8140	8195	8250	8304	8359	8414		
04	8469	8524	8579	8634	8689	8744	8799	8854	8909	8964		
05	9019	9074	9129	9184	9238	9293	9348	9403	9458	9513		
06	9568	9623	9678	9733	9788	9843	9898	9953	0008	0062		
07	8980117	0172	0227	0282	0337	0392	0447	0502	0557	0612		
08	0667	0722	0776	0831	0886	0941	0996	1051	1106	1161		
09	1216	1271	1326	1380	1435	1490	1545	1600	1655	1710		
7910	1765	1820	1875	1930	1984	2039	2094	2149	2204	2259		55
11	2314	2369	2424	2479	2533	2588	2643	2698	2753	2808		6
12	2863	2918	2973	3027	3082	3137	3192	3247	3302	3357		11
13	3412	3467	3521	3576	3631	3686	3741	3796	3851	3906		17
14	3960	4015	4070	4125	4180	4235	4290	4345	4399	4454		22
15	4509	4564	4619	4674	4729	4784	4838	4893	4948	5003		28
16	5058	5113	5168	5222	5277	5332	5387	5442	5497	5552		33
17	5606	5661	5716	5771	5826	5881	5936	5990	6045	6100		39
18	6155	6210	6265	6320	6374	6429	6484	6539	6594	6649		44
19	6703	6758	6813	6868	6923	6978	7032	7087	7142	7197		50
7920	7252	7307	7361	7416	7471	7526	7581	7636	7690	7745		
21	7800	7855	7910	7965	8019	8074	8129	8184	8239	8294		
22	8348	8403	8458	8513	8568	8622	8677	8732	8787	8842		
23	8897	8951	9006	9061	9116	9171	9225	9280	9335	9390		
24	9445	9499	9554	9609	9664	9719	9774	9828	9883	9938		
25	9993	0048	0102	0157	0212	0267	0321	0376	0431	0486		
26	8990541	0595	0650	0705	0760	0815	0869	0924	0979	1034		
27	1089	1143	1198	1253	1308	1363	1417	1472	1527	1582		
28	1636	1691	1746	1801	1856	1910	1965	2020	2075	2129		
29	2184	2239	2294	2348	2403	2458	2513	2568	2622	2677		
7930	2732	2787	2841	2896	2951	3006	3060	3115	3170	3225		54
31	3279	3334	3389	3444	3499	3553	3608	3663	3718	3772		5
32	3827	3882	3937	3991	4046	4101	4156	4210	4265	4320		11
33	4375	4429	4484	4539	4594	4648	4703	4758	4812	4867		16
34	4922	4977	5031	5086	5141	5196	5250	5305	5360	5415		22
35	5469	5524	5579	5634	5688	5743	5798	5852	5907	5962		27
36	6017	6071	6126	6181	6235	6290	6345	6400	6454	6509		32
37	6564	6619	6673	6728	6783	6837	6892	6947	7002	7056		38
38	7111	7166	7220	7275	7330	7384	7439	7494	7549	7603		43
39	7658	7713	7767	7822	7877	7932	7986	8041	8096	8150		49
7940	8205	8260	8314	8369	8424	8479	8533	8588	8643	8697		
41	8752	8807	8861	8916	8971	9025	9080	9135	9189	9244		
42	9299	9354	9408	9463	9518	9572	9627	9682	9736	9791		
43	9846	9900	9955	0010	0064	0119	0174	0228	0283	0338		
44	9000392	0447	0502	0556	0611	0666	0720	0775	0830	0884		
45	0939	0994	1048	1103	1158	1212	1267	1322	1376	1431		
46	1486	1540	1595	1650	1704	1759	1814	1868	1923	1977		
47	2032	2087	2141	2196	2251	2305	2360	2415	2469	2524		
48	2579	2633	2688	2743	2797	2852	2906	2961	3016	3070		
49	3125	3180	3234	3289	3344	3398	3453	3507	3562	3617		
N	O	1	2	3	4	5	6	7	8	9	D	Pts

(146)

LOGARITHMS

N. 795 L. 900

N	0	1	2	3	4	5	6	7	8	9	D	Pro
7950	9003671	3726	3781	3835	3890	3944	3999	4054	4108	4163		
51	4218	4272	4327	4381	4436	4491	4545	4600	4654	4709		
52	4764	4818	4873	4928	4982	5037	5091	5146	5201	5255		
53	5310	5364	5419	5474	5528	5583	5637	5692	5747	5801		
54	5856	5910	5965	6020	6074	6129	6183	6238	6293	6347		
55	6402	6456	6511	6566	6620	6675	6729	6784	6839	6893		
56	6948	7002	7057	7112	7166	7221	7275	7330	7384	7439		
57	7494	7548	7603	7657	7712	7766	7821	7876	7930	7985		
58	8039	8094	8148	8203	8258	8312	8367	8421	8476	8530		
59	8585	8640	8694	8749	8803	8858	8912	8967	9022	9076		
7960	9131	9185	9240	9294	9349	9403	9458	9513	9567	9622		
61	9676	9731	9785	9840	9894	9949	0004	0058	0113	0167		
62	9010222	0276	0331	0385	0440	0494	0549	0604	0658	0713		
63	0767	0822	0876	0931	0985	1040	1094	1149	1203	1258		
64	1313	1367	1422	1476	1531	1585	1640	1694	1749	1803		
65	1858	1912	1967	2021	2076	2130	2185	2239	2294	2349		
66	2403	2458	2512	2567	2621	2676	2730	2785	2839	2894		
67	2948	3003	3057	3112	3166	3221	3275	3330	3384	3439		
68	3493	3548	3602	3657	3711	3766	3820	3875	3929	3984		
69	4038	4093	4147	4202	4256	4311	4365	4420	4474	4529		
7970	4583	4638	4692	4747	4801	4856	4910	4965	5019	5074		
71	5128	5183	5237	5292	5346	5401	5455	5509	5564	5618		
72	5673	5727	5782	5836	5891	5945	6000	6054	6109	6163		
73	6218	6272	6327	6381	6436	6490	6544	6599	6653	6708		
74	6762	6817	6871	6926	6980	7035	7089	7144	7198	7252		
75	7307	7361	7416	7470	7525	7579	7634	7688	7743	7797		
76	7851	7906	7960	8015	8069	8124	8178	8233	8287	8341		
77	8396	8450	8505	8559	8614	8668	8723	8777	8831	8886		
78	8940	8995	9049	9104	9158	9212	9267	9321	9376	9430		
79	9485	9539	9594	9648	9702	9757	9811	9866	9920	9974		
7980	9020029	0083	0138	0192	0247	0301	0355	0410	0464	0519		
81	0573	0628	0682	0736	0791	0845	0900	0954	1008	1063		
82	1117	1172	1226	1280	1335	1389	1444	1498	1552	1607		
83	1661	1716	1770	1824	1879	1933	1988	2042	2096	2151		
84	2205	2260	2314	2368	2423	2477	2532	2586	2640	2695		
85	2749	2804	2858	2912	2967	3021	3076	3130	3184	3239		
86	3293	3347	3402	3456	3511	3565	3619	3674	3728	3782		
87	3837	3891	3946	4000	4054	4109	4163	4217	4272	4326		
88	4381	4435	4489	4544	4598	4652	4707	4761	4815	4870		
89	4924	4979	5033	5087	5142	5196	5250	5305	5359	5413		
7990	5468	5522	5577	5631	5685	5740	5794	5848	5903	5957		
91	6011	6066	6120	6174	6229	6283	6337	6392	6446	6500		
92	6555	6609	6663	6718	6772	6826	6881	6935	6989	7044		
93	7098	7152	7207	7261	7315	7370	7424	7478	7533	7587		
94	7641	7696	7750	7804	7859	7913	7967	8022	8076	8130		
95	8185	8239	8293	8348	8402	8456	8511	8565	8619	8674		
96	8728	8782	8836	8891	8945	8999	9054	9108	9162	9217		
97	9271	9325	9380	9434	9488	9542	9597	9651	9705	9760		
98	9814	9868	9923	9977	0031	0085	0140	0194	0248	0303		
99	9030357	0411	0466	0520	0574	0628	0683	0737	0791	0846		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

55
1 6
2 12
3 17
4 22
5 28
6 33
7 39
8 44
9 50

54
1 5
2 11
3 16
4 22
5 27
6 32
7 38
8 43
9 49

N	O	I	2	3	4	5	6	7	8	9	D	Pro
8000	9030900	0954	1008	1063	1117	1171	1226	1280	1334	1388		
01	1443	1497	1551	1606	1660	1714	1768	1823	1877	1931		
02	1985	2040	2094	2148	2203	2257	2311	2365	2420	2474		
03	2528	2582	2637	2691	2745	2799	2854	2908	2962	3017		
04	3071	3125	3179	3234	3288	3342	3396	3451	3505	3559		
05	3613	3668	3722	3776	3830	3885	3939	3993	4047	4102		
06	4156	4210	4264	4319	4373	4427	4481	4536	4590	4644		
07	4698	4753	4807	4861	4915	4969	5024	5078	5132	5186		
08	5241	5295	5349	5403	5458	5512	5566	5620	5674	5729		
09	5783	5837	5891	5946	6000	6054	6108	6163	6217	6271		
8010	6325	6379	6434	6488	6542	6596	6650	6705	6759	6813		
11	6867	6922	6976	7030	7084	7138	7193	7247	7301	7355		
12	7409	7464	7518	7572	7626	7680	7735	7789	7843	7897		
13	7951	8006	8060	8114	8168	8222	8277	8331	8385	8439		
14	8493	8548	8602	8656	8710	8764	8819	8873	8927	8981		
15	9035	9089	9144	9198	9252	9306	9360	9415	9469	9523		
16	9577	9631	9685	9740	9794	9848	9902	9956	0010	0065		
17	9040119	0173	0227	0281	0336	0390	0444	0498	0552	0606		
18	0661	0715	0769	0823	0877	0931	0985	1040	1094	1148		
19	1202	1256	1310	1365	1419	1473	1527	1581	1635	1690		
8020	1744	1798	1852	1906	1960	2014	2069	2123	2177	2231		
21	2285	2339	2393	2448	2502	2556	2610	2664	2718	2772		
22	2827	2881	2935	2989	3043	3097	3151	3206	3260	3314		
23	3368	3422	3476	3530	3584	3639	3693	3747	3801	3855		
24	3909	3963	4017	4072	4126	4180	4234	4288	4342	4396		
25	4450	4505	4559	4613	4667	4721	4775	4829	4883	4937		
26	4992	5046	5100	5154	5208	5262	5316	5370	5424	5479		
27	5533	5587	5641	5695	5749	5803	5857	5911	5965	6020		
28	6074	6128	6182	6236	6290	6344	6398	6452	6506	6560		
29	6615	6669	6723	6777	6831	6885	6939	6993	7047	7101		
8030	7155	7210	7264	7318	7372	7426	7480	7534	7588	7642		
31	7696	7750	7804	7858	7913	7967	8021	8075	8129	8183		
32	8237	8291	8345	8399	8453	8507	8561	8615	8670	8724		
33	8778	8832	8886	8940	8994	9048	9102	9156	9210	9264		
34	9318	9372	9426	9480	9534	9589	9643	9697	9751	9805		
35	9859	9913	9967	0021	0075	0129	0183	0237	0291	0345		
36	9050399	0453	0507	0561	0615	0669	0724	0778	0832	0886		
37	0940	0994	1048	1102	1156	1210	1264	1318	1372	1426		
38	1480	1534	1588	1642	1696	1750	1804	1858	1912	1966		
39	2020	2074	2128	2182	2236	2290	2344	2398	2452	2506		
8040	2560	2615	2669	2723	2777	2831	2885	2939	2993	3047		
41	3101	3155	3209	3263	3317	3371	3425	3479	3533	3587		
42	3641	3695	3749	3803	3857	3911	3965	4019	4073	4127		
43	4181	4235	4289	4343	4397	4451	4505	4559	4613	4667		
44	4721	4775	4829	4883	4937	4991	5045	5099	5153	5207		
45	5260	5314	5368	5422	5476	5530	5584	5638	5692	5746		
46	5800	5854	5908	5962	6016	6070	6124	6178	6232	6286		
47	6340	6394	6448	6502	6556	6610	6664	6718	6772	6826		
48	6880	6934	6988	7042	7096	7149	7203	7257	7311	7365		
49	7419	7473	7527	7581	7635	7689	7743	7797	7851	7905		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

54

1	5
2	11
3	16
4	22
5	27
6	32
7	38
8	43
9	49

53

1	5
2	11
3	16
4	21
5	27
6	32
7	37
8	42
9	48

54

N	0	1	2	3	4	5	6	7	8	9	D	Pro
8050	9057959	8013	8067	8121	8175	8229	8282	8336	8390	8444		
51	8498	8552	8606	8660	8714	8768	8822	8876	8930	8984		
52	9038	9092	9146	9199	9253	9307	9361	9415	9469	9523		
53	9577	9631	9685	9739	9793	9847	9901	9954	0008	0062		
54	9060116	0170	0224	0278	0332	0386	0440	0494	0548	0602		
55	0655	0709	0763	0817	0871	0925	0979	1033	1087	1141		
56	1195	1248	1302	1356	1410	1464	1518	1572	1626	1680		
57	1734	1788	1841	1895	1949	2003	2057	2111	2165	2219		
58	2273	2327	2380	2434	2488	2542	2596	2650	2704	2758		
59	2812	2865	2919	2973	3027	3081	3135	3189	3243	3297		
8060	3350	3404	3458	3512	3566	3620	3674	3728	3781	3835		
61	3889	3943	3997	4051	4105	4159	4212	4266	4320	4374		
62	4428	4482	4536	4590	4643	4697	4751	4805	4859	4913		
63	4967	5020	5074	5128	5182	5236	5290	5344	5397	5451		
64	5505	5559	5613	5667	5721	5774	5828	5882	5936	5990		
65	6044	6098	6151	6205	6259	6313	6367	6421	6474	6528		
66	6582	6636	6690	6744	6798	6851	6905	6959	7013	7067		
67	7121	7174	7228	7282	7336	7390	7444	7497	7551	7605		
68	7659	7713	7767	7820	7874	7928	7982	8036	8090	8143		
69	8197	8251	8305	8359	8412	8466	8520	8574	8628	8682		
8070	8735	8789	8843	8897	8951	9004	9058	9112	9166	9220		
71	9273	9327	9381	9435	9489	9543	9596	9650	9704	9758		
72	9812	9865	9919	9973	0027	0081	0134	0188	0242	0296		
73	9070350	0403	0457	0511	0565	0618	0672	0726	0780	0834		
74	0887	0941	0995	1049	1103	1156	1210	1264	1318	1372		
75	1425	1479	1533	1587	1640	1694	1748	1802	1856	1909		
76	1963	2017	2071	2124	2178	2232	2286	2340	2393	2447		
77	2501	2555	2608	2662	2716	2770	2823	2877	2931	2985		
78	3038	3092	3146	3200	3254	3307	3361	3415	3469	3522		
79	3576	3630	3684	3737	3791	3845	3899	3952	4006	4060		
8080	4114	4167	4221	4275	4329	4382	4436	4490	4544	4597		
81	4651	4705	4759	4812	4866	4920	4974	5027	5081	5135		
82	5188	5242	5296	5350	5403	5457	5511	5565	5618	5672		
83	5726	5780	5833	5887	5941	5994	6048	6102	6156	6209		
84	6263	6317	6370	6424	6478	6532	6585	6639	6693	6747		
85	6800	6854	6908	6961	7015	7069	7123	7176	7230	7284		
86	7337	7391	7445	7498	7552	7606	7660	7713	7767	7821		
87	7874	7928	7982	8036	8089	8143	8197	8250	8304	8358		
88	8411	8465	8519	8573	8626	8680	8734	8787	8841	8895		
89	8948	9002	9056	9109	9163	9217	9270	9324	9378	9432		
8090	9485	9539	9593	9646	9700	9754	9807	9861	9915	9968		
91	9080022	0076	0129	0183	0237	0290	0344	0398	0451	0505		
92	0559	0612	0666	0720	0773	0827	0881	0934	0988	1042		
93	1095	1149	1203	1256	1310	1364	1417	1471	1525	1578		
94	1632	1686	1739	1793	1847	1900	1954	2008	2061	2115		
95	2169	2222	2276	2329	2383	2437	2490	2544	2598	2651		
96	2705	2759	2812	2866	2920	2973	3027	3080	3134	3188		
97	3241	3295	3349	3402	3456	3510	3563	3617	3670	3724		
98	3778	3831	3885	3939	3992	4046	4099	4153	4207	4260		
99	4314	4368	4421	4475	4528	4582	4636	4689	4743	4797		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

54

1	5
2	11
3	16
4	22
5	27
6	32
7	38
8	43
9	49

53

1	5
2	11
3	16
4	21
5	27
6	32
7	37
8	42
9	48

N	O	I	2	3	4	.5	6	7	8	9	D	Pro
8100	9084850	4904	4957	5011	5065	5118	5172	5225	5279	5333		
01	5386	5440	5494	5547	5601	5654	5708	5762	5815	5869		
02	5922	5976	6030	6083	6137	6190	6244	6298	6351	6405		
03	6458	6512	6566	6619	6673	6726	6780	6834	6887	6941		
04	6994	7048	7102	7155	7209	7262	7316	7369	7423	7477		
05	7530	7584	7637	7691	7745	7798	7852	7905	7959	8012		
06	8066	8120	8173	8227	8280	8334	8387	8441	8495	8548		
07	8602	8655	8709	8762	8816	8870	8923	8977	9030	9084		
08	9137	9191	9245	9298	9352	9405	9459	9512	9566	9619		
09	9673	9727	9780	9834	9887	9941	9994	0048	0101	0155		
8110	9090209	0262	0316	0369	0423	0476	0530	0583	0637	0690		
11	0744	0798	0851	0905	0958	1012	1065	1119	1172	1226		
12	1279	1333	1386	1440	1494	1547	1601	1654	1708	1761		
13	1815	1868	1922	1975	2029	2082	2136	2189	2243	2297		
14	2350	2404	2457	2511	2564	2618	2671	2725	2778	2832		
15	2885	2939	2992	3046	3099	3153	3206	3260	3313	3367		
16	3420	3474	3527	3581	3634	3688	3741	3795	3848	3902		
17	3955	4009	4062	4116	4169	4223	4276	4330	4383	4437		
18	4490	4544	4597	4651	4704	4758	4811	4865	4918	4972		
19	5025	5079	5132	5186	5239	5293	5346	5400	5453	5507		
8120	5560	5614	5667	5721	5774	5828	5881	5935	5988	6042		
21	6095	6149	6202	6256	6309	6362	6416	6469	6523	6576		
22	6630	6683	6737	6790	6844	6897	6951	7004	7058	7111		
23	7165	7218	7271	7325	7378	7432	7485	7539	7592	7646		
24	7699	7753	7806	7860	7913	7966	8020	8073	8127	8180		
25	8234	8287	8341	8394	8447	8501	8554	8608	8661	8715		
26	8768	8822	8875	8929	8982	9035	9089	9142	9196	9249		
27	9303	9356	9409	9463	9516	9570	9623	9677	9730	9784		
28	9837	9890	9944	9997	0051	0104	0158	0211	0264	0318		
29	9100371	0425	0478	0532	0585	0638	0692	0745	0799	0852		
8130	0905	0959	1012	1066	1119	1173	1226	1279	1333	1386		
31	1440	1493	1546	1600	1653	1707	1760	1813	1867	1920		
32	1974	2027	2081	2134	2187	2241	2294	2348	2401	2454		
33	2508	2561	2615	2668	2721	2775	2828	2882	2935	2988		
34	3042	3095	3148	3202	3255	3309	3362	3415	3469	3522		
35	3576	3629	3682	3736	3789	3842	3896	3949	4003	4056		
36	4109	4163	4216	4270	4323	4376	4430	4483	4536	4590		
37	4643	4697	4750	4803	4857	4910	4963	5017	5070	5123		
38	5177	5230	5284	5337	5390	5444	5497	5550	5604	5657		
39	5710	5764	5817	5871	5924	5977	6031	6084	6137	6191		
8140	6244	6297	6351	6404	6457	6511	6564	6618	6671	6724		
41	6778	6831	6884	6938	6991	7044	7098	7151	7204	7258		
42	7311	7364	7418	7471	7524	7578	7631	7684	7738	7791		
43	7844	7898	7951	8004	8058	8111	8164	8218	8271	8324		
44	8378	8431	8484	8538	8591	8644	8698	8751	8804	8858		
45	8911	8964	9018	9071	9124	9177	9231	9284	9337	9391		
46	9444	9497	9551	9604	9657	9711	9764	9817	9871	9924		
47	9977	0030	0084	0137	0190	0244	0297	0350	0404	0457		
48	9110510	0564	0617	0670	0723	0777	0830	0883	0937	0990		
49	1043	1096	1150	1203	1256	1310	1363	1416	1470	1523		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

54

1	5
2	11
3	16
4	22
5	27
6	32
7	38
8	43
9	49

53

1	5
2	11
3	16
4	21
5	27
6	32
7	37
8	42
9	48

(150)

LOGARITHMS

N. 815 L. 911

N	0	1	2	3	4	5	6	7	8	9	D	Pro
8150	9111576	1629	1683	1736	1789	1843	1896	1949	2002	2056		
51	2109	2162	2215	2269	2322	2375	2429	2482	2535	2588		
52	2642	2695	2748	2802	2855	2908	2961	3015	3068	3121		
53	3174	3228	3281	3334	3387	3441	3494	3547	3601	3654		
54	3707	3760	3814	3867	3920	3973	4027	4080	4133	4186		
55	4240	4293	4346	4399	4453	4506	4559	4612	4666	4719		
56	4772	4825	4879	4932	4985	5038	5092	5145	5198	5251		
57	5305	5358	5411	5464	5518	5571	5624	5677	5731	5784		
58	5837	5890	5943	5997	6050	6103	6156	6210	6263	6316		
59	6369	6423	6476	6529	6582	6635	6689	6742	6795	6848		
8160	6902	6955	7008	7061	7114	7168	7221	7274	7327	7381		
61	7434	7487	7540	7593	7647	7700	7753	7806	7859	7913		
62	7966	8019	8072	8126	8179	8232	8285	8338	8392	8445		
63	8498	8551	8604	8658	8711	8764	8817	8870	8924	8977		
64	9030	9083	9136	9190	9243	9296	9349	9402	9456	9509		
65	9562	9615	9668	9721	9775	9828	9881	9934	9987	0041		
66	9120094	0147	0200	0253	0306	0360	0413	0466	0519	0572		
67	0626	0679	0732	0785	0837	0891	0945	0998	1051	1104		
68	1157	1210	1264	1317	1370	1423	1476	1529	1583	1636		
69	1689	1742	1795	1848	1902	1955	2008	2061	2114	2167		
8170	2221	2274	2327	2380	2433	2486	2539	2593	2646	2699		
71	2752	2805	2858	2912	2965	3018	3071	3124	3177	3230		
72	3284	3337	3390	3443	3496	3549	3602	3656	3709	3762		
73	3815	3868	3921	3974	4028	4081	4134	4187	4240	4293		
74	4346	4399	4453	4506	4559	4612	4665	4718	4771	4824		
75	4878	4931	4984	5037	5090	5143	5196	5249	5303	5356		
76	5409	5462	5515	5568	5621	5674	5728	5781	5834	5887		
77	5940	5993	6046	6099	6152	6206	6259	6312	6365	6418		
78	6471	6524	6577	6630	6683	6737	6790	6843	6896	6949		
79	7002	7055	7108	7161	7214	7268	7321	7374	7427	7480		
8180	7533	7586	7639	7692	7745	7798	7852	7905	7958	8011		
81	8064	8117	8170	8223	8276	8329	8382	8436	8489	8542		
82	8595	8648	8701	8754	8807	8860	8913	8966	9019	9072		
83	9126	9179	9232	9285	9338	9391	9444	9497	9550	9603		
84	9656	9709	9762	9815	9868	9922	9975	0028	0081	0134		
85	9130187	0240	0293	0346	0399	0452	0505	0558	0611	0664		
86	0717	0770	0824	0877	0930	0983	1036	1089	1142	1195		
87	1248	1301	1354	1407	1460	1513	1566	1619	1672	1725		
88	1778	1831	1884	1937	1990	2044	2097	2150	2203	2256		
89	2309	2362	2415	2468	2521	2574	2627	2680	2733	2786		
8190	2839	2892	2945	2998	3051	3104	3157	3210	3263	3316		
91	3369	3422	3475	3528	3581	3634	3687	3740	3793	3846		
92	3899	3952	4005	4058	4111	4165	4218	4271	4324	4377		
93	4430	4483	4536	4589	4642	4695	4748	4801	4854	4907		
94	4960	5013	5066	5119	5172	5225	5278	5331	5384	5437		
95	5490	5543	5596	5649	5702	5755	5808	5861	5914	5967		
96	6019	6072	6125	6178	6231	6284	6337	6390	6443	6496		
97	6549	6602	6655	6708	6761	6814	6867	6920	6973	7026		
98	7079	7132	7185	7238	7291	7344	7397	7450	7503	7556		
99	7609	7662	7715	7768	7821	7874	7927	7980	8033	8086		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

54

1	5
2	11
3	16
4	22
5	27
6	32
7	38
8	43
9	49

53

1	5
2	11
3	16
4	21
5	27
6	32
7	37
8	42
9	48

53

N	O	I	2	3	4	5	6	7	8	9	D	Pro
8200	9138139	8191	8244	8297	8350	8403	8456	8509	8562	8615		
01	8668	8721	8774	8827	8880	8933	8986	9039	9092	9145		
02	9198	9251	9304	9356	9409	9462	9515	9568	9621	9674		
03	9727	9780	9833	9886	9939	9992	0045	0098	0151	0204		
04	9140257	0309	0362	0415	0468	0521	0574	0627	0680	0733		
05	0786	0839	0892	0945	0998	1050	1103	1156	1209	1262		
06	1315	1368	1421	1474	1527	1580	1633	1686	1738	1791		
07	1844	1897	1950	2003	2056	2109	2162	2215	2268	2321		
08	2373	2426	2479	2532	2585	2638	2691	2744	2797	2850		
09	2903	2955	3008	3061	3114	3167	3220	3273	3326	3379		
8210	3432	3484	3537	3590	3643	3696	3749	3802	3855	3908		
11	3961	4013	4066	4119	4172	4225	4278	4331	4384	4437		
12	4489	4542	4595	4648	4701	4754	4807	4860	4912	4965		
13	5018	5071	5124	5177	5230	5283	5335	5388	5441	5494		
14	5547	5600	5653	5706	5758	5811	5864	5917	5970	6023		
15	6076	6129	6181	6234	6287	6340	6393	6446	6499	6551		
16	6604	6657	6710	6763	6816	6869	6921	6974	7027	7080		
17	7133	7186	7239	7291	7344	7397	7450	7503	7556	7609		
18	7661	7714	7767	7820	7873	7926	7978	8031	8084	8137		
19	8190	8243	8295	8348	8401	8454	8507	8560	8613	8665		
8220	8718	8771	8824	8877	8930	8982	9035	9088	9141	9194		
21	9246	9299	9352	9405	9458	9511	9563	9616	9669	9722		
22	9775	9828	9880	9933	9986	0039	0092	0144	0197	0250		
23	9150303	0356	0409	0461	0514	0567	0620	0673	0725	0778		
24	0831	0884	0937	0989	1042	1095	1148	1201	1253	1306		
25	1359	1412	1465	1517	1570	1623	1676	1729	1781	1834		
26	1887	1940	1993	2045	2098	2151	2204	2257	2309	2362		
27	2415	2468	2521	2573	2626	2679	2732	2784	2837	2890		
28	2943	2996	3048	3101	3154	3207	3260	3312	3365	3418		
29	3471	3523	3576	3629	3682	3734	3787	3840	3893	3946		
8230	3998	4051	4104	4157	4209	4262	4315	4368	4420	4473		
31	4526	4579	4632	4684	4737	4790	4843	4895	4948	5001		
32	5054	5106	5159	5212	5265	5317	5370	5423	5476	5528		
33	5581	5634	5687	5739	5792	5845	5898	5950	6003	6056		
34	6109	6161	6214	6267	6320	6372	6425	6478	6531	6583		
35	6636	6689	6742	6794	6847	6900	6952	7005	7058	7111		
36	7163	7216	7269	7322	7374	7427	7480	7532	7585	7638		
37	7691	7743	7796	7849	7902	7954	8007	8060	8112	8165		
38	8218	8271	8323	8376	8429	8481	8534	8587	8640	8692		
39	8745	8798	8850	8903	8956	9009	9061	9114	9167	9219		
8240	9272	9325	9378	9430	9483	9536	9588	9641	9694	9746		
41	9799	9852	9905	9957	0010	0063	0115	0168	0221	0273		
42	9160326	0379	0431	0484	0537	0590	0642	0695	0748	0800		
43	0853	0906	0958	1011	1064	1116	1169	1222	1274	1327		
44	1380	1433	1485	1538	1591	1643	1696	1749	1801	1854		
45	1907	1959	2012	2065	2117	2170	2223	2275	2328	2381		
46	2433	2486	2539	2591	2644	2697	2749	2802	2855	2907		
47	2960	3013	3065	3118	3171	3223	3276	3329	3381	3434		
48	3487	3539	3592	3644	3697	3750	3802	3855	3908	3960		
49	4013	4066	4118	4171	4224	4276	4329	4382	4434	4487		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

53

1	5
2	11
3	16
4	21
5	27
6	32
7	37
8	42
9	48

52

1	5
2	10
3	16
4	21
5	26
6	31
7	36
8	42
9	47

(152)

LOGARITHMS

N. 825 L. 916

N	0	1	2	3	4	5	6	7	8	9	D	Pro
8250	9164539	4592	4645	4697	4750	4803	4855	4908	4961	5013		
51	5066	5119	5171	5224	5276	5329	5382	5434	5487	5540		
52	5592	5645	5697	5750	5803	5855	5908	5961	6013	6066		
53	6118	6171	6224	6276	6329	6382	6434	6487	6539	6592		
54	6645	6697	6750	6802	6855	6908	6960	7013	7066	7118		
55	7171	7223	7276	7329	7381	7434	7486	7539	7592	7644		
56	7697	7749	7802	7855	7907	7960	8012	8065	8118	8170		
57	8223	8275	8328	8381	8433	8486	8538	8591	8644	8696		
58	8749	8801	8854	8907	8959	9012	9064	9117	9169	9222		
59	9275	9327	9380	9432	9485	9538	9590	9643	9695	9748		
8260	9800	9853	9906	9958	0011	0063	0116	0169	0221	0274		
61	9170326	0379	0431	0484	0537	0589	0642	0694	0747	0799		
62	0852	0904	0957	1010	1062	1115	1167	1220	1272	1325		
63	1378	1430	1483	1535	1588	1640	1693	1745	1798	1851		
64	1903	1956	2008	2061	2113	2166	2218	2271	2323	2376		
65	2429	2481	2534	2586	2639	2691	2744	2796	2849	2901		
66	2954	3007	3059	3112	3164	3217	3269	3322	3374	3427		
67	3479	3532	3584	3637	3690	3742	3795	3847	3900	3952		
68	4005	4057	4110	4162	4215	4267	4320	4372	4425	4477		
69	4530	4582	4635	4687	4740	4793	4845	4898	4950	5003		
8270	5055	5108	5160	5213	5265	5318	5370	5423	5475	5528		
71	5580	5633	5685	5738	5790	5843	5895	5948	6000	6053		
72	6105	6158	6210	6263	6315	6368	6420	6473	6525	6578		
73	6630	6683	6735	6788	6840	6893	6945	6998	7050	7103		
74	7155	7208	7260	7313	7365	7418	7470	7523	7575	7628		
75	7680	7733	7785	7837	7890	7942	7995	8047	8100	8152		
76	8205	8257	8310	8362	8415	8467	8520	8572	8625	8677		
77	8730	8782	8834	8887	8939	8992	9044	9097	9149	9202		
78	9254	9307	9359	9412	9464	9517	9569	9621	9674	9726		
79	9779	9831	9884	9936	9989	0041	0094	0146	0198	0251		
8280	9180303	0356	0408	0461	0513	0566	0618	0671	0723	0775		
81	0828	0880	0933	0985	1038	1090	1143	1195	1247	1300		
82	1352	1405	1457	1510	1562	1614	1667	1719	1772	1824		
83	1877	1929	1981	2034	2086	2139	2191	2244	2296	2348		
84	2401	2453	2506	2558	2611	2663	2715	2768	2820	2873		
85	2925	2978	3030	3082	3135	3187	3240	3292	3344	3397		
86	3449	3502	3554	3607	3659	3711	3764	3816	3869	3921		
87	3973	4026	4078	4131	4183	4235	4288	4340	4393	4445		
88	4497	4550	4602	4655	4707	4759	4812	4864	4917	4969		
89	5021	5074	5126	5179	5231	5283	5336	5388	5441	5493		
8290	5545	5598	5650	5702	5755	5807	5860	5912	5964	6017		
91	6069	6122	6174	6226	6279	6331	6383	6436	6488	6541		
92	6593	6645	6698	6750	6802	6855	6907	6960	7012	7064		
93	7117	7169	7221	7274	7326	7378	7431	7483	7536	7588		
94	7640	7693	7745	7797	7850	7902	7954	8007	8059	8112		
95	8164	8216	8269	8321	8373	8426	8478	8530	8582	8635		
96	8687	8740	8792	8844	8897	8949	9002	9054	9106	9159		
97	9211	9263	9316	9368	9420	9473	9525	9577	9630	9682		
98	9734	9787	9839	9891	9944	9996	0048	0101	0153	0205		
99	9190258	0310	0362	0415	0467	0519	0572	0624	0676	0729		
N	0	1	2	3	4	5	6	7	8	9	D	Pro

53
1 5
2 11
3 16
4 21
5 27
6 32
7 37
8 42
9 48

52
1 5
2 10
3 16
4 21
5 26
6 31
7 36
8 42
9 47

N	O	I	2	3	4	5	6	7	8	9	D	Pro
8300	9190781	0833	0886	0938	0990	1043	1095	1147	1200	1252		
01	1304	1356	1409	1461	1513	1566	1618	1670	1723	1775		
02	1827	1880	1932	1984	2037	2089	2141	2193	2246	2298		
03	2350	2403	2455	2507	2560	2612	2664	2717	2769	2821		
04	2873	2926	2978	3030	3083	3135	3187	3239	3292	3344		
05	3396	3449	3501	3553	3606	3658	3710	3762	3815	3867		
06	3919	3972	4024	4076	4128	4181	4233	4285	4338	4390		
07	4442	4494	4547	4599	4651	4703	4756	4808	4860	4913		
08	4965	5017	5069	5122	5174	5226	5279	5331	5383	5435		
09	5488	5540	5592	5644	5697	5749	5801	5853	5906	5958		
8310	6010	6062	6115	6167	6219	6272	6324	6376	6428	6481		
11	6533	6585	6637	6690	6742	6794	6846	6899	6951	7003		
12	7055	7108	7160	7212	7264	7317	7369	7421	7473	7526		
13	7578	7630	7682	7735	7787	7839	7891	7943	7996	8048		
14	8100	8152	8205	8257	8309	8361	8414	8466	8518	8570		
15	8623	8675	8727	8779	8831	8884	8936	8988	9040	9093		
16	9145	9197	9249	9301	9354	9406	9458	9510	9563	9615		
17	9667	9719	9771	9824	9876	9928	9980	0033	0085	0137		
18	9200189	0241	0294	0346	0398	0450	0502	0555	0607	0659		
19	0711	0763	0816	0868	0920	0972	1024	1077	1129	1181		
8320	1233	1285	1338	1390	1442	1494	1546	1599	1651	1703		
21	1755	1807	1860	1912	1964	2016	2068	2121	2173	2225		
22	2277	2329	2381	2434	2486	2538	2590	2642	2695	2747		
23	2799	2851	2903	2955	3008	3060	3112	3164	3216	3269		
24	3321	3373	3425	3477	3529	3582	3634	3686	3738	3790		
25	3842	3895	3947	3999	4051	4103	4155	4208	4260	4312		
26	4364	4416	4468	4521	4573	4625	4677	4729	4781	4833		
27	4886	4938	4990	5042	5094	5146	5199	5251	5303	5355		
28	5407	5459	5511	5564	5616	5668	5720	5772	5824	5876		
29	5929	5981	6033	6085	6137	6189	6241	6294	6346	6398		
8330	6450	6502	6554	6606	6659	6711	6763	6815	6867	6919		
31	6971	7023	7076	7128	7180	7232	7284	7336	7388	7440		
32	7493	7545	7597	7649	7701	7753	7805	7857	7910	7962		
33	8014	8066	8118	8170	8222	8274	8327	8379	8431	8483		
34	8535	8587	8639	8691	8743	8796	8848	8900	8952	9004		
35	9056	9108	9160	9212	9264	9317	9369	9421	9473	9525		
36	9577	9629	9681	9733	9785	9838	9890	9942	9994	0046		
37	9210098	0150	0202	0254	0306	0358	0411	0463	0515	0567		
38	0619	0671	0723	0775	0827	0879	0931	0983	1036	1088		
39	1140	1192	1244	1296	1348	1400	1452	1504	1556	1608		
8340	1661	1713	1765	1817	1869	1921	1973	2025	2077	2129		
41	2181	2233	2285	2337	2389	2442	2494	2546	2598	2650		
42	2702	2754	2806	2858	2910	2962	3014	3066	3118	3170		
43	3222	3274	3327	3379	3431	3483	3535	3587	3639	3691		
44	3743	3795	3847	3899	3951	4003	4055	4107	4159	4211		
45	4263	4315	4367	4420	4472	4524	4576	4628	4680	4732		
46	4784	4836	4888	4940	4992	5044	5096	5148	5200	5252		
47	5304	5356	5408	5460	5512	5564	5616	5668	5720	5772		
48	5824	5876	5928	5980	6032	6085	6137	6189	6241	6293		
49	6345	6397	6449	6501	6553	6605	6657	6709	6761	6813		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

53

1	5
2	11
3	16
4	21
5	27
6	32
7	37
8	42
9	48

52

1	5
2	10
3	16
4	21
5	26
6	31
7	36
8	42
9	47

(154)

LOGARITHMS

N. 835 L. 921

N	0	1	2	3	4	5	6	7	8	9	D	Pro
8350	9216865	6917	6969	7021	7073	7125	7177	7229	7281	7333	52	
51	7385	7437	7489	7541	7593	7645	7697	7749	7801	7853		
52	7905	7957	8009	8061	8113	8165	8217	8269	8321	8373		
53	8425	8477	8529	8581	8633	8685	8737	8789	8841	8893		
54	8945	8997	9049	9101	9153	9205	9257	9309	9361	9413		
55	9465	9517	9569	9620	9672	9724	9776	9828	9880	9932		
56	9984	0036	0088	0140	0192	0244	0296	0348	0400	0452		
57	9220504	0556	0608	0660	0712	0764	0816	0868	0920	0972		
58	1024	1076	1128	1180	1232	1283	1335	1387	1439	1491		
59	1543	1595	1647	1699	1751	1803	1855	1907	1959	2011		
8360	2063	2115	2167	2219	2271	2323	2374	2426	2478	2530	52	
61	2582	2634	2686	2738	2790	2842	2894	2946	2998	3050		
62	3102	3154	3206	3257	3309	3361	3413	3465	3517	3569		
63	3621	3673	3725	3777	3829	3881	3933	3984	4036	4088		
64	4140	4192	4244	4296	4348	4400	4452	4504	4556	4608		
65	4659	4711	4763	4815	4867	4919	4971	5023	5075	5127		
66	5179	5231	5282	5334	5386	5438	5490	5542	5594	5646		
67	5698	5750	5801	5853	5905	5957	6009	6061	6113	6165		
68	6217	6269	6321	6372	6424	6476	6528	6580	6632	6684		
69	6736	6788	6839	6891	6943	6995	7047	7099	7151	7203		
8370	7255	7306	7358	7410	7462	7514	7566	7618	7670	7722	51	
71	7773	7825	7877	7929	7981	8033	8085	8137	8188	8240		
72	8292	8344	8396	8448	8500	8552	8603	8655	8707	8759		
73	8811	8863	8915	8967	9018	9070	9122	9174	9226	9278		
74	9330	9381	9433	9485	9537	9589	9641	9693	9744	9796		
75	9848	9900	9952	0004	0056	0107	0159	0211	0263	0315		
76	9230367	0419	0470	0522	0574	0626	0678	0730	0781	0833		
77	0885	0937	0989	1041	1093	1144	1196	1248	1300	1352		
78	1404	1455	1507	1559	1611	1663	1715	1766	1818	1870		
79	1922	1974	2026	2077	2129	2181	2233	2285	2337	2388		
8380	2440	2492	2544	2596	2647	2699	2751	2803	2855	2907	51	
81	2958	3010	3062	3114	3166	3217	3269	3321	3373	3425		
82	3477	3528	3580	3632	3684	3736	3787	3839	3891	3943		
83	3995	4046	4098	4150	4202	4254	4305	4357	4409	4461		
84	4513	4564	4616	4668	4720	4772	4823	4875	4927	4979		
85	5031	5082	5134	5186	5238	5290	5341	5393	5445	5497		
86	5549	5600	5652	5704	5756	5808	5859	5911	5963	6015		
87	6066	6118	6170	6222	6274	6325	6377	6429	6481	6532		
88	6584	6636	6688	6740	6791	6843	6895	6947	6998	7050		
89	7102	7154	7205	7257	7309	7361	7413	7464	7516	7568		
8390	7620	7671	7723	7775	7827	7878	7930	7982	8034	8085	51	
91	8137	8189	8241	8292	8344	8396	8448	8499	8551	8603		
92	8655	8707	8758	8810	8862	8913	8965	9017	9069	9120		
93	9172	9224	9276	9327	9379	9431	9483	9534	9586	9638		
94	9690	9741	9793	9845	9897	9948	0000	0052	0104	0155		
95	9240207	0259	0310	0362	0414	0466	0517	0569	0621	0673		
96	0724	0776	0828	0879	0931	0983	1035	1086	1138	1190		
97	1242	1293	1345	1397	1448	1500	1552	1604	1655	1707		
98	1759	1810	1862	1914	1966	2017	2069	2121	2172	2224		
99	2276	2328	2379	2431	2483	2534	2586	2638	2689	2741		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

N	O	I	2	3	4	5	6	7	8	9	D	Pro
8400	9242793	2845	2896	2948	3000	3051	3103	3155	3206	3258		
01	3310	3362	3413	3465	3517	3568	3620	3672	3723	3775		
02	3827	3878	3930	3982	4034	4085	4137	4189	4240	4292		
03	4344	4395	4447	4499	4550	4602	4654	4705	4757	4809		
04	4860	4912	4964	5015	5067	5119	5170	5222	5274	5326		
05	5377	5429	5481	5532	5584	5636	5687	5739	5791	5842		
06	5894	5946	5997	6049	6101	6152	6204	6255	6307	6359		
07	6410	6462	6514	6565	6617	6669	6720	6772	6824	6875		
08	6927	6979	7030	7082	7134	7185	7237	7289	7340	7392		
09	7444	7495	7547	7598	7650	7702	7753	7805	7857	7908		
8410	7960	8012	8063	8115	8167	8218	8270	8321	8373	8425		
11	8476	8528	8580	8631	8683	8734	8786	8838	8889	8941		
12	8993	9044	9096	9148	9199	9251	9302	9354	9406	9457		
13	9509	9561	9612	9664	9715	9767	9819	9870	9922	9973		
14	9250025	0077	0128	0180	0232	0283	0335	0386	0438	0490		
15	0541	0593	0644	0696	0748	0799	0851	0902	0954	1006		
16	1057	1109	1160	1212	1264	1315	1367	1418	1470	1522		
17	1573	1625	1676	1728	1780	1831	1883	1934	1986	2038		
18	2089	2141	2192	2244	2296	2347	2399	2450	2502	2554		
19	2605	2657	2708	2760	2811	2863	2915	2966	3018	3069		
8420	3121	3172	3224	3276	3327	3379	3430	3482	3534	3585		
21	3637	3688	3740	3791	3843	3895	3946	3998	4049	4101		
22	4152	4204	4256	4307	4359	4410	4462	4513	4565	4616		
23	4668	4720	4771	4823	4874	4926	4977	5029	5080	5132		
24	5184	5235	5287	5338	5390	5441	5493	5544	5596	5648		
25	5699	5751	5802	5854	5905	5957	6008	6060	6111	6163		
26	6215	6266	6318	6369	6421	6472	6524	6575	6627	6678		
27	6730	6781	6833	6885	6936	6988	7039	7091	7142	7194		
28	7245	7297	7348	7400	7451	7503	7554	7606	7657	7709		
29	7761	7812	7864	7915	7967	8018	8070	8121	8173	8224		
8430	8276	8327	8379	8430	8482	8533	8585	8636	8688	8739		
31	8791	8842	8894	8945	8997	9048	9100	9151	9203	9254		
32	9306	9357	9409	9460	9512	9563	9615	9667	9718	9770		
33	9821	9873	9924	9975	0027	0078	0130	0181	0233	0284		
34	9260336	0387	0439	0490	0542	0593	0645	0696	0748	0799		
35	0851	0902	0954	1005	1057	1108	1160	1211	1263	1314		
36	1366	1417	1469	1520	1572	1623	1675	1726	1778	1829		
37	1880	1932	1983	2035	2086	2138	2189	2241	2292	2344		
38	2395	2447	2498	2550	2601	2653	2704	2755	2807	2858		
39	2910	2961	3013	3064	3116	3167	3219	3270	3322	3373		
8440	3424	3476	3527	3579	3630	3682	3733	3785	3836	3888		
41	3939	3990	4042	4093	4145	4196	4248	4299	4351	4402		
42	4453	4505	4556	4608	4659	4711	4762	4814	4865	4916		
43	4968	5019	5071	5122	5174	5225	5277	5328	5379	5431		
44	5482	5534	5585	5637	5688	5739	5791	5842	5894	5945		
45	5997	6048	6099	6151	6202	6254	6305	6357	6408	6459		
46	6511	6562	6614	6665	6716	6768	6819	6871	6922	6974		
47	7025	7076	7128	7179	7231	7282	7333	7385	7436	7488		
48	7539	7590	7642	7693	7745	7796	7847	7899	7950	8002		
49	8053	8105	8156	8207	8259	8310	8362	8413	8464	8516		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

52

1	5
2	10
3	16
4	21
5	26
6	31
7	36
8	42
9	47

51

1	5
2	10
3	15
4	20
5	26
6	31
7	36
8	41
9	46

(156)		LOGARITHMS										N. 845 L. 926	
N	O	1	2	3	4	5	6	7	8	9	D	Pro	
8450	9268567	8618	8670	8721	8773	8824	8875	8927	8978	9030			
51	9081	9132	9184	9235	9287	9338	9389	9441	9492	9543			
52	9595	9646	9698	9749	9800	9852	9903	9955	0006	0057			
53	9270109	0160	0211	0263	0314	0366	0417	0468	0520	0571			
54	0622	0674	0725	0777	0828	0879	0931	0982	1033	1085			
55	1136	1187	1239	1290	1342	1393	1444	1496	1547	1598			
56	1650	1701	1752	1804	1855	1907	1958	2009	2061	2112			
57	2163	2215	2266	2317	2369	2420	2471	2523	2574	2625			
58	2677	2728	2780	2831	2882	2934	2985	3036	3088	3139			
59	3190	3242	3293	3344	3396	3447	3498	3550	3601	3652			
8460	3704	3755	3806	3858	3909	3960	4012	4063	4114	4166		52	
61	4217	4268	4320	4371	4422	4474	4525	4576	4628	4679		1 5	
62	4730	4782	4833	4884	4935	4987	5038	5089	5141	5192		2 10	
63	5243	5295	5346	5397	5449	5500	5551	5603	5654	5705		3 16	
64	5757	5808	5859	5910	5962	6013	6064	6116	6167	6218		4 21	
65	6270	6321	6372	6424	6475	6526	6577	6629	6680	6731		5 26	
66	6783	6834	6885	6937	6988	7039	7090	7142	7193	7244		6 31	
67	7296	7347	7398	7449	7501	7552	7603	7655	7706	7757		7 36	
68	7808	7860	7911	7962	8014	8065	8116	8167	8219	8270		8 42	
69	8321	8373	8424	8475	8526	8578	8629	8680	8732	8783		9 47	
8470	8834	8885	8937	8988	9039	9090	9142	9193	9244	9296			
71	9347	9398	9449	9501	9552	9603	9654	9706	9757	9808			
72	9859	9911	9962	0013	0065	0116	0167	0218	0270	0321			
73	9280372	0423	0475	0526	0577	0628	0680	0731	0782	0833			
74	0885	0936	0987	1038	1090	1141	1192	1243	1295	1346			
75	1397	1448	1500	1551	1602	1653	1705	1756	1807	1858			
76	1909	1961	2012	2063	2114	2166	2217	2268	2319	2371			
77	2422	2473	2524	2576	2627	2678	2729	2780	2832	2883			
78	2934	2985	3037	3088	3139	3190	3241	3293	3344	3395			
79	3446	3498	3549	3600	3651	3702	3754	3805	3856	3907			
8480	3959	4010	4061	4112	4163	4215	4266	4317	4368	4419		51	
81	4471	4522	4573	4624	4675	4727	4778	4829	4880	4931		1 5	
82	4983	5034	5085	5136	5187	5239	5290	5341	5392	5443		2 10	
83	5495	5546	5597	5648	5699	5751	5802	5853	5904	5955		3 15	
84	6007	6058	6109	6160	6211	6263	6314	6365	6416	6467		4 20	
85	6518	6570	6621	6672	6723	6774	6826	6877	6928	6979		5 26	
86	7030	7081	7133	7184	7235	7286	7337	7389	7440	7491		6 31	
87	7542	7593	7644	7696	7747	7798	7849	7900	7951	8003		7 36	
88	8054	8105	8156	8207	8258	8310	8361	8412	8463	8514		8 41	
89	8565	8616	8668	8719	8770	8821	8872	8923	8975	9026		9 46	
8490	9077	9128	9179	9230	9282	9333	9384	9435	9486	9537			
91	9588	9640	9691	9742	9793	9844	9895	9946	9998	0049			
92	9290100	0151	0202	0253	0304	0356	0407	0458	0509	0560			
93	0611	0662	0714	0765	0816	0867	0918	0969	1020	1071			
94	1123	1174	1225	1276	1327	1378	1429	1480	1532	1583			
95	1634	1685	1736	1787	1838	1889	1941	1992	2043	2094			
96	2145	2196	2247	2298	2350	2401	2452	2503	2554	2605			
97	2656	2707	2758	2810	2861	2912	2963	3014	3065	3116			
98	3167	3218	3269	3321	3372	3423	3474	3525	3576	3627			
99	3678	3729	3780	3832	3883	3934	3985	4036	4087	4138			
N	O	1	2	3	4	5	6	7	8	9	D	Pts	

N	0	1	2	3	4	5	6	7	8	9	D	Pro
8500	9294189	4240	4291	4343	4394	4445	4496	4547	4598	4649		
01	4700	4751	4802	4853	4905	4956	5007	5058	5109	5160		
02	5211	5262	5313	5364	5415	5466	5517	5569	5620	5671		
03	5722	5773	5824	5875	5926	5977	6028	6079	6130	6181		
04	6233	6284	6335	6386	6437	6488	6539	6590	6641	6692		
05	6743	6794	6845	6896	6947	6998	7050	7101	7152	7203		
06	7254	7305	7356	7407	7458	7509	7560	7611	7662	7713		
07	7764	7815	7866	7917	7969	8020	8071	8122	8173	8224		
08	8275	8326	8377	8428	8479	8530	8581	8632	8683	8734		
09	8785	8836	8887	8938	8989	9040	9091	9142	9194	9245		
8510	9296	9347	9398	9449	9500	9551	9602	9653	9704	9755		
11	9806	9857	9908	9959	0010	0061	0112	0163	0214	0265		
12	9300316	0367	0418	0469	0520	0571	0622	0673	0724	0775		
13	0826	0877	0928	0979	1030	1081	1132	1183	1234	1285		
14	1336	1387	1438	1489	1540	1591	1643	1694	1745	1796		
15	1847	1898	1949	2000	2051	2102	2153	2204	2255	2306		
16	2357	2408	2459	2510	2561	2612	2663	2713	2764	2815		
17	2866	2917	2968	3019	3070	3121	3172	3223	3274	3325		
18	3376	3427	3478	3529	3580	3631	3682	3733	3784	3835		
19	3886	3937	3988	4039	4090	4141	4192	4243	4294	4345		
8520	4396	4447	4498	4549	4600	4651	4702	4753	4804	4855		
21	4906	4957	5008	5059	5110	5160	5211	5262	5313	5364		
22	5415	5466	5517	5568	5619	5670	5721	5772	5823	5874		
23	5925	5976	6027	6078	6129	6180	6231	6282	6333	6383		
24	6434	6485	6536	6587	6638	6689	6740	6791	6842	6893		
25	6944	6995	7046	7097	7148	7199	7250	7300	7351	7402		
26	7453	7504	7555	7606	7657	7708	7759	7810	7861	7912		
27	7963	8014	8064	8115	8166	8217	8268	8319	8370	8421		
28	8472	8523	8574	8625	8676	8727	8777	8828	8879	8930		
29	8981	9032	9083	9134	9185	9236	9287	9338	9388	9439		
8530	9490	9541	9592	9643	9694	9745	9796	9847	9898	9949		
31	9999	0050	0101	0152	0203	0254	0305	0356	0407	0458		
32	9310508	0559	0610	0661	0712	0763	0814	0865	0916	0967		
33	1017	1068	1119	1170	1221	1272	1323	1374	1425	1475		
34	1526	1577	1628	1679	1730	1781	1832	1883	1933	1984		
35	2035	2086	2137	2188	2239	2290	2341	2391	2442	2493		
36	2544	2595	2646	2697	2748	2798	2849	2900	2951	3002		
37	3053	3104	3155	3205	3256	3307	3358	3409	3460	3511		
38	3562	3612	3663	3714	3765	3816	3867	3918	3968	4019		
39	4070	4121	4172	4223	4274	4324	4375	4426	4477	4528		
8540	4579	4630	4680	4731	4782	4833	4884	4935	4986	5036		
41	5087	5138	5189	5240	5291	5341	5392	5443	5494	5545		
42	5596	5647	5697	5748	5799	5850	5901	5952	6002	6053		
43	6104	6155	6206	6257	6307	6358	6409	6460	6511	6562		
44	6612	6663	6714	6765	6816	6867	6917	6968	7019	7070		
45	7121	7171	7222	7273	7324	7375	7426	7476	7527	7578		
46	7629	7680	7731	7781	7832	7883	7934	7985	8035	8086		
47	8137	8188	8239	8289	8340	8391	8442	8493	8544	8594		
48	8645	8696	8747	8798	8848	8899	8950	9001	9052	9102		
49	9153	9204	9255	9306	9356	9407	9458	9509	9560	9610		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

51

51	5
1	10
2	15
3	20
4	26
5	31
6	36
7	41
8	46

50	5
1	10
2	15
3	20
4	25
5	30
6	35
7	40
8	45

(158)		LOGARITHMS										N. 855 L. 931	
N	0	1	2	3	4	5	6	7	8	9	D	Pro	
8550	9319661	9712	9763	9814	9864	9915	9966	0017	0067	0118			
51	9320169	0220	0271	0321	0372	0423	0474	0525	0575	0626			
52	0677	0728	0778	0829	0880	0931	0982	1032	1083	1134			
53	1185	1235	1286	1337	1388	1439	1489	1540	1591	1642			
54	1692	1743	1794	1845	1896	1946	1997	2048	2099	2149			
55	2200	2251	2302	2352	2403	2454	2505	2555	2606	2657			
56	2708	2759	2809	2860	2911	2962	3012	3063	3114	3165			
57	3215	3266	3317	3368	3418	3469	3520	3571	3621	3672			
58	3723	3774	3824	3875	3926	3977	4027	4078	4129	4180			
59	4230	4281	4332	4382	4433	4484	4535	4585	4636	4687			
8560	4738	4788	4839	4890	4941	4991	5042	5093	5144	5194			
61	5245	5296	5346	5397	5448	5499	5549	5600	5651	5702			
62	5752	5803	5854	5904	5955	6006	6057	6107	6158	6209			
63	6259	6310	6361	6412	6462	6513	6564	6614	6665	6716			
64	6767	6817	6868	6919	6969	7020	7071	7122	7172	7223			
65	7274	7324	7375	7426	7476	7527	7578	7629	7679	7730			
66	7781	7831	7882	7933	7983	8034	8085	8136	8186	8237			
67	8288	8338	8389	8440	8490	8541	8592	8643	8693	8744			
68	8795	8845	8896	8947	8997	9048	9099	9149	9200	9251			
69	9301	9352	9403	9453	9504	9555	9606	9656	9707	9758			
8570	9808	9859	9910	9960	0011	0062	0112	0163	0214	0264			
71	9330315	0366	0416	0467	0518	0568	0619	0670	0720	0771			
72	0822	0872	0923	0974	1024	1075	1126	1176	1227	1278			
73	1328	1379	1430	1480	1531	1582	1632	1683	1733	1784			
74	1835	1885	1936	1987	2037	2088	2139	2189	2240	2291			
75	2341	2392	2443	2493	2544	2595	2645	2696	2746	2797			
76	2848	2898	2949	3000	3050	3101	3152	3202	3253	3303			
77	3354	3405	3455	3506	3557	3607	3658	3709	3759	3810			
78	3860	3911	3962	4012	4063	4114	4164	4215	4265	4316			
79	4367	4417	4468	4519	4569	4620	4670	4721	4772	4822			
8580	4873	4923	4974	5025	5075	5126	5177	5227	5278	5328			
81	5379	5430	5480	5531	5581	5632	5683	5733	5784	5834			
82	5885	5936	5986	6037	6088	6138	6189	6239	6290	6341			
83	6391	6442	6492	6543	6594	6644	6695	6745	6796	6846			
84	6897	6948	6998	7049	7099	7150	7201	7251	7302	7352			
85	7403	7454	7504	7555	7605	7656	7707	7757	7808	7858			
86	7909	7959	8010	8061	8111	8162	8212	8263	8313	8364			
87	8415	8465	8516	8566	8617	8668	8718	8769	8819	8870			
88	8920	8971	9021	9072	9123	9173	9224	9274	9325	9375			
89	9426	9477	9527	9578	9628	9679	9729	9780	9831	9881			
8590	9932	9982	0033	0083	0134	0184	0235	0286	0336	0387			
91	9340437	0488	0538	0589	0639	0690	0740	0791	0842	0892			
92	0943	0993	1044	1094	1145	1195	1246	1296	1347	1398			
93	1448	1499	1549	1600	1650	1701	1751	1802	1852	1903			
94	1953	2004	2055	2105	2156	2206	2257	2307	2358	2408			
95	2459	2509	2560	2610	2661	2711	2762	2812	2863	2914			
96	2964	3015	3065	3116	3166	3217	3267	3318	3368	3419			
97	3469	3520	3570	3621	3671	3722	3772	3823	3873	3924			
98	3974	4025	4075	4126	4176	4227	4277	4328	4378	4429			
99	4479	4530	4580	4631	4682	4732	4783	4833	4884	4934			
N	0	1	2	3	4	5	6	7	8	9	D	Pts	

51	5
2	10
3	15
4	20
5	26
6	31
7	36
8	41
9	46

50	5
2	10
3	15
4	20
5	25
6	30
7	35
8	40
9	45

N	O	I	2	3	4	5	6	7	8	9	D	Pro
8600	9344985	5035	5086	5136	5187	5237	5287	5338	5388	5439		
01	5489	5540	5590	5641	5691	5742	5792	5843	5893	5944		
02	5994	6045	6095	6146	6196	6247	6297	6348	6398	6449		
03	6499	6550	6600	6651	6701	6752	6802	6853	6903	6954		
04	7004	7054	7105	7155	7206	7256	7307	7357	7408	7458		
05	7509	7559	7610	7660	7711	7761	7812	7862	7912	7963		
06	8013	8064	8114	8165	8215	8266	8316	8367	8417	8468		
07	8518	8568	8619	8669	8720	8770	8821	8871	8922	8972		
08	9023	9073	9123	9174	9224	9275	9325	9376	9426	9477		
09	9527	9578	9628	9678	9729	9779	9830	9880	9931	9981		
8610	9350032	0082	0132	0183	0233	0284	0334	0385	0435	0485		
11	0536	0586	0637	0687	0738	0788	0838	0889	0939	0990		
12	1040	1091	1141	1191	1242	1292	1343	1393	1444	1494		
13	1544	1595	1645	1696	1746	1797	1847	1897	1948	1998		
14	2049	2099	2150	2200	2250	2301	2351	2402	2452	2502		
15	2553	2603	2654	2704	2754	2805	2855	2906	2956	3006		
16	3057	3107	3158	3208	3259	3309	3359	3410	3460	3511		
17	3561	3611	3662	3712	3763	3813	3863	3914	3964	4015		
18	4065	4115	4166	4216	4266	4317	4367	4418	4468	4518		
19	4569	4619	4670	4720	4770	4821	4871	4922	4972	5022		
8620	5073	5123	5173	5224	5274	5325	5375	5425	5476	5526		
21	5576	5627	5677	5728	5778	5828	5879	5929	5979	6030		
22	6080	6131	6181	6231	6282	6332	6382	6433	6483	6533		
23	6584	6634	6685	6735	6785	6836	6886	6936	6987	7037		
24	7087	7138	7188	7239	7289	7339	7390	7440	7490	7541		
25	7591	7641	7692	7742	7792	7843	7893	7943	7994	8044		
26	8095	8145	8195	8246	8296	8346	8397	8447	8497	8548		
27	8598	8648	8699	8749	8799	8850	8900	8950	9001	9051		
28	9101	9152	9202	9252	9303	9353	9403	9454	9504	9554		
29	9605	9655	9705	9756	9806	9856	9907	9957	0007	0058		
8630	9360108	0158	0209	0259	0309	0360	0410	0460	0511	0561		
31	0611	0661	0712	0762	0812	0863	0913	0963	1014	1064		
32	1114	1165	1215	1265	1316	1366	1416	1466	1517	1567		
33	1617	1668	1718	1768	1819	1869	1919	1970	2020	2070		
34	2120	2171	2221	2271	2322	2372	2422	2473	2523	2573		
35	2623	2674	2724	2774	2825	2875	2925	2975	3026	3076		
36	3126	3177	3227	3277	3327	3378	3428	3478	3529	3579		
37	3629	3679	3730	3780	3830	3881	3931	3981	4031	4082		
38	4132	4182	4233	4283	4333	4383	4434	4484	4534	4584		
39	4635	4685	4735	4786	4836	4886	4936	4987	5037	5087		
8640	5137	5188	5238	5288	5338	5389	5439	5489	5540	5590		
41	5640	5690	5741	5791	5841	5891	5942	5992	6042	6092		
42	6143	6193	6243	6293	6344	6394	6444	6494	6545	6595		
43	6645	6695	6746	6796	6846	6896	6947	6997	7047	7097		
44	7148	7198	7248	7298	7349	7399	7449	7499	7550	7600		
45	7650	7700	7750	7801	7851	7901	7951	8002	8052	8102		
46	8152	8203	8253	8303	8353	8403	8454	8504	8554	8604		
47	8655	8705	8755	8805	8855	8906	8956	9006	9056	9107		
48	9157	9207	9257	9307	9358	9408	9458	9508	9559	9609		
49	9659	9709	9759	9810	9860	9910	9960	0010	0061	0111		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

51

1 5

2 10

3 15

4 20

5 26

6 31

7 36

8 41

9 46

50

1 5

2 10

3 15

4 20

5 26

6 30

7 35

8 40

9 45

N	0	1	2	3	4	5	6	7	8	9	D	Pro
8650	9370161	0211	0261	0312	0362	0412	0462	0513	0563	0613		
51	0663	0713	0764	0814	0864	0914	0964	1015	1065	1115		
52	1165	1215	1265	1316	1366	1416	1466	1516	1567	1617		
53	1667	1717	1767	1818	1868	1918	1968	2018	2069	2119		
54	2169	2219	2269	2319	2370	2420	2470	2520	2570	2621		
55	2671	2721	2771	2821	2871	2922	2972	3022	3072	3122		
56	3172	3223	3273	3323	3373	3423	3474	3524	3574	3624		
57	3674	3724	3775	3825	3875	3925	3975	4025	4075	4126		
58	4176	4226	4276	4326	4376	4427	4477	4527	4577	4627		
59	4677	4728	4778	4828	4878	4928	4978	5028	5079	5129		
8660	5179	5229	5279	5329	5380	5430	5480	5530	5580	5630		
61	5680	5731	5781	5831	5881	5931	5981	6031	6082	6132		
62	6182	6232	6282	6332	6382	6432	6483	6533	6583	6633		
63	6683	6733	6783	6834	6884	6934	6984	7034	7084	7134		
64	7184	7235	7285	7335	7385	7435	7485	7535	7585	7636		
65	7686	7736	7786	7836	7886	7936	7986	8037	8087	8137		
66	8187	8237	8287	8337	8387	8437	8488	8538	8588	8638		
67	8688	8738	8788	8838	8888	8939	8989	9039	9089	9139		
68	9189	9239	9289	9339	9389	9440	9490	9540	9590	9640		
69	9690	9740	9790	9840	9890	9941	9991	0041	0091	0141		
8670	9380191	0241	0291	0341	0391	0441	0492	0542	0592	0642		
71	0692	0742	0792	0842	0892	0942	0992	1042	1093	1143		
72	1193	1243	1293	1343	1393	1443	1493	1543	1593	1643		
73	1693	1744	1794	1844	1894	1944	1994	2044	2094	2144		
74	2194	2244	2294	2344	2394	2445	2495	2545	2595	2645		
75	2695	2745	2795	2845	2895	2945	2995	3045	3095	3145		
76	3195	3245	3296	3346	3396	3446	3496	3546	3596	3646		
77	3696	3746	3796	3846	3896	3946	3996	4046	4096	4146		
78	4196	4247	4297	4347	4397	4447	4497	4547	4597	4647		
79	4697	4747	4797	4847	4897	4947	4997	5047	5097	5147		
8680	5197	5247	5297	5347	5397	5447	5497	5547	5598	5648		
81	5698	5748	5798	5848	5898	5948	5998	6048	6098	6148		
82	6198	6248	6298	6348	6398	6448	6498	6548	6598	6648		
83	6698	6748	6798	6848	6898	6948	6998	7048	7098	7148		
84	7198	7248	7298	7348	7398	7448	7498	7548	7598	7648		
85	7698	7748	7798	7848	7898	7948	7998	8048	8098	8148		
86	8198	8248	8298	8348	8398	8448	8498	8548	8598	8648		
87	8698	8748	8798	8848	8898	8948	8998	9048	9098	9148		
88	9198	9248	9298	9348	9398	9448	9498	9548	9598	9648		
89	9698	9748	9798	9848	9898	9948	9998	0048	0098	0148		
8690	9390198	0248	0298	0348	0398	0448	0498	0548	0598	0648		
91	0697	0747	0797	0847	0897	0947	0997	1047	1097	1147		
92	1197	1247	1297	1347	1397	1447	1497	1547	1597	1647		
93	1697	1747	1797	1847	1897	1947	1997	2046	2096	2146		
94	2196	2246	2296	2346	2396	2446	2496	2546	2596	2646		
95	2696	2746	2796	2846	2896	2946	2996	3045	3095	3145		
96	3195	3245	3295	3345	3395	3445	3495	3545	3595	3645		
97	3695	3745	3795	3845	3894	3944	3994	4044	4094	4144		
98	4194	4244	4294	4344	4394	4444	4494	4544	4593	4643		
99	4693	4743	4793	4843	4893	4943	4993	5043	5093	5143		
N	0	1	2	3	4	5	6	7	8	9	D	Pro

51
10
15
20
25
30
35
40
45

50
10
15
20
25
30
35
40
45

50

N	O	I	2	3	4	5	6	7	8	9	D	Pro
8700	9395	193	5242	5292	5342	5392	5442	5492	5542	5592	5642	
01	5692	5742	5792	5841	5891	5941	5991	6041	6091	6141		
02	6191	6241	6291	6341	6390	6440	6490	6540	6590	6640		
03	6690	6740	6790	6840	6889	6939	6989	7039	7089	7139		
04	7189	7239	7289	7339	7388	7438	7488	7538	7588	7638		
05	7688	7738	7788	7837	7887	7937	7987	8037	8087	8137		
06	8187	8237	8286	8336	8386	8436	8486	8536	8586	8636		
07	8685	8735	8785	8835	8885	8935	8985	9035	9084	9134		
08	9184	9234	9284	9334	9384	9434	9483	9533	9583	9633		
09	9683	9733	9783	9833	9882	9932	9982	0032	0082	0132		
8710	9400	182	0231	0281	0331	0381	0431	0481	0531	0580	0630	
11	0680	0730	0780	0830	0880	0929	0979	1029	1079	1129		50
12	1179	1229	1278	1328	1378	1428	1478	1528	1577	1627		5
13	1677	1727	1777	1827	1877	1926	1976	2026	2076	2126		10
14	2176	2225	2275	2325	2375	2425	2475	2524	2574	2624		15
15	2674	2724	2774	2823	2873	2923	2973	3023	3073	3122		20
16	3172	3222	3272	3322	3372	3421	3471	3521	3571	3621		25
17	3670	3720	3770	3820	3870	3920	3969	4019	4069	4119		30
18	4169	4218	4268	4318	4368	4418	4468	4517	4567	4617		35
19	4667	4717	4766	4816	4866	4916	4966	5015	5065	5115		40
8720	5165	5215	5264	5314	5364	5414	5464	5513	5563	5613		45
21	5663	5713	5762	5812	5862	5912	5962	6011	6061	6111		
22	6161	6211	6260	6310	6360	6410	6460	6509	6559	6609		
23	6659	6709	6758	6808	6858	6908	6957	7007	7057	7107		
24	7157	7206	7256	7306	7356	7405	7455	7505	7555	7605		
25	7654	7704	7754	7804	7853	7903	7953	8003	8053	8102		
26	8152	8202	8252	8301	8351	8401	8451	8500	8550	8600		
27	8650	8700	8749	8799	8849	8899	8948	8998	9048	9098		
28	9147	9197	9247	9297	9346	9396	9446	9496	9545	9595		
29	9645	9695	9744	9794	9844	9894	9943	9993	0043	0093		
8730	9410	142	0192	0242	0292	0341	0391	0441	0491	0540	0590	
31	0640	0690	0739	0789	0839	0889	0938	0988	1038	1088		49
32	1137	1187	1237	1286	1336	1386	1436	1485	1535	1585		5
33	1635	1684	1734	1784	1834	1883	1933	1983	2032	2082		10
34	2132	2182	2231	2281	2331	2380	2430	2480	2530	2579		15
35	2629	2679	2729	2778	2828	2878	2927	2977	3027	3077		20
36	3126	3176	3226	3275	3325	3375	3425	3474	3524	3574		25
37	3623	3673	3723	3772	3822	3872	3922	3971	4021	4071		30
38	4120	4170	4220	4270	4319	4369	4419	4468	4518	4568		35
39	4617	4667	4717	4766	4816	4866	4916	4965	5015	5065		40
8740	5114	5164	5214	5263	5313	5363	5412	5462	5512	5562		
41	5611	5661	5711	5760	5810	5860	5909	5959	6009	6058		
42	6108	6158	6207	6257	6307	6356	6406	6456	6505	6555		
43	6605	6654	6704	6754	6803	6853	6903	6952	7002	7052		
44	7101	7151	7201	7250	7300	7350	7399	7449	7499	7548		
45	7598	7648	7697	7747	7797	7846	7896	7946	7995	8045		
46	8095	8144	8194	8244	8293	8343	8393	8442	8492	8542		
47	8591	8641	8691	8740	8790	8840	8889	8939	8988	9038		
48	9088	9137	9187	9237	9286	9336	9386	9435	9485	9535		
49	9584	9634	9683	9733	9783	9832	9882	9932	9981	0031		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

N	0	1	2	3	4	5	6	7	8	9	D	Pro
8750	9420081	0130	0180	0229	0279	0329	0378	0428	0478	0527		
51	0577	0626	0676	0726	0775	0825	0875	0924	0974	1023		
52	1073	1123	1172	1222	1272	1321	1371	1420	1470	1520		
53	1569	1619	1669	1718	1768	1817	1867	1917	1966	2016		
54	2065	2115	2165	2214	2264	2313	2363	2413	2462	2512		
55	2562	2611	2661	2710	2760	2810	2859	2909	2958	3008		
56	3058	3107	3157	3206	3256	3306	3355	3405	3454	3504		
57	3553	3603	3653	3702	3752	3801	3851	3901	3950	4000		
58	4049	4099	4149	4198	4248	4297	4347	4397	4446	4496		
59	4545	4595	4644	4694	4744	4793	4843	4892	4942	4991		
8760	5041	5091	5140	5190	5239	5289	5339	5388	5438	5487		
61	5537	5586	5636	5686	5735	5785	5834	5884	5933	5983		
62	6032	6082	6132	6181	6231	6280	6330	6379	6429	6479		
63	6528	6578	6627	6677	6726	6776	6825	6875	6925	6974		
64	7024	7073	7123	7172	7222	7271	7321	7371	7420	7470		
65	7519	7569	7618	7668	7717	7767	7816	7866	7916	7965		
66	8015	8064	8114	8163	8213	8262	8312	8361	8411	8461		
67	8510	8560	8609	8659	8708	8758	8807	8857	8906	8956		
68	9005	9055	9104	9154	9204	9253	9303	9352	9402	9451		
69	9501	9550	9600	9649	9699	9748	9798	9847	9897	9946		
8770	9996	0045	0095	0144	0194	0244	0293	0343	0392	0442		
71	9430491	0541	0590	0640	0689	0739	0788	0838	0887	0937		
72	0986	1036	1085	1135	1184	1234	1283	1333	1382	1432		
73	1481	1531	1580	1630	1679	1729	1778	1828	1877	1927		
74	1976	2026	2075	2125	2174	2224	2273	2323	2372	2422		
75	2471	2521	2570	2620	2669	2719	2768	2818	2867	2917		
76	2966	3016	3065	3115	3164	3214	3263	3313	3362	3412		
77	3461	3510	3560	3609	3659	3708	3758	3807	3857	3906		
78	3956	4005	4055	4104	4154	4203	4253	4302	4352	4401		
79	4450	4500	4549	4599	4648	4698	4747	4797	4846	4896		
8780	4945	4995	5044	5094	5143	5192	5242	5291	5341	5390		
81	5440	5489	5539	5588	5638	5687	5737	5786	5835	5885		
82	5934	5984	6033	6083	6132	6182	6231	6280	6330	6379		
83	6429	6478	6528	6577	6627	6676	6726	6775	6824	6874		
84	6923	6973	7022	7072	7121	7170	7220	7269	7319	7368		
85	7418	7467	7517	7566	7615	7665	7714	7764	7813	7863		
86	7912	7961	8011	8060	8110	8159	8209	8258	8307	8357		
87	8406	8456	8505	8555	8604	8653	8703	8752	8802	8851		
88	8900	8950	8999	9049	9098	9148	9197	9246	9296	9345		
89	9395	9444	9493	9543	9592	9642	9691	9741	9790	9839		
8790	9889	9938	9988	0037	0086	0136	0185	0235	0284	0333		
91	9440383	0432	0482	0531	0580	0630	0679	0729	0778	0827		
92	0877	0926	0976	1025	1074	1124	1173	1223	1272	1321		
93	1371	1420	1470	1519	1568	1618	1667	1716	1766	1815		
94	1865	1914	1963	2013	2062	2112	2161	2210	2260	2309		
95	2358	2408	2457	2507	2556	2605	2655	2704	2753	2803		
96	2852	2902	2951	3000	3050	3099	3148	3198	3247	3297		
97	3346	3395	3445	3494	3543	3593	3642	3691	3741	3790		
98	3840	3889	3938	3988	4037	4086	4136	4185	4234	4284		
99	4333	4383	4432	4481	4531	4580	4629	4679	4728	4777		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

50

1	5
2	10
3	15
4	20
5	25
6	30
7	35
8	40
9	45

49

1	5
2	10
3	15
4	20
5	25
6	29
7	34
8	39
9	44

N. 880 L. 944

OF NUMBERS.

(163)

N	O	I	2	3	4	5	6	7	8	9	D	Pro
8800	9444	827	4876	4925	4975	5024	5073	5123	5172	5222	5271	
01	5320	5370	5419	5468	5518	5567	5616	5666	5715	5764		
02	5814	5863	5912	5962	6011	6060	6110	6159	6208	6258		
03	6307	6356	6406	6455	6504	6554	6603	6652	6702	6751		
04	6800	6850	6899	6948	6998	7047	7096	7146	7195	7244		
05	7294	7343	7392	7442	7491	7540	7590	7639	7688	7737		
06	7787	7836	7885	7935	7984	8033	8083	8132	8181	8231		
07	8280	8329	8379	8428	8477	8527	8576	8625	8674	8724		
08	8773	8822	8872	8921	8970	9020	9069	9118	9167	9217		
09	9266	9315	9365	9414	9463	9513	9562	9611	9660	9710		
8810	9759	9808	9858	9907	9956	0006	0055	0104	0153	0203		
11	9450	0252	0301	0351	0400	0449	0498	0548	0597	0646		
12	0745	0794	0843	0893	0942	0991	1041	1090	1139	1188		
13	1238	1287	1336	1386	1435	1484	1533	1583	1632	1681		
14	1730	1780	1829	1878	1928	1977	2026	2075	2125	2174		
15	2223	2272	2322	2371	2420	2469	2519	2568	2617	2667		
16	2716	2765	2814	2864	2913	2962	3011	3061	3110	3159		
17	3208	3258	3307	3356	3405	3455	3504	3553	3602	3652		
18	3701	3750	3799	3849	3898	3947	3996	4046	4095	4144		
19	4193	4243	4292	4341	4390	4440	4489	4538	4587	4637		
8820	4686	4735	4784	4834	4883	4932	4981	5031	5080	5129		
21	5178	5227	5277	5326	5375	5424	5474	5523	5572	5621		
22	5671	5720	5769	5818	5867	5917	5966	6015	6064	6114		
23	6163	6212	6261	6310	6360	6409	6458	6507	6557	6606		
24	6655	6704	6753	6803	6852	6901	6950	7000	7049	7098		
25	7147	7196	7246	7295	7344	7393	7442	7492	7541	7590		
26	7639	7688	7738	7787	7836	7885	7934	7984	8033	8082		
27	8131	8180	8230	8279	8328	8377	8426	8476	8525	8574		
28	8623	8672	8722	8771	8820	8869	8918	8968	9017	9066		
29	9115	9164	9214	9263	9312	9361	9410	9459	9509	9558		
8830	9607	9656	9705	9755	9804	9853	9902	9951	0000	0050		
31	9460	0099	0148	0197	0246	0296	0345	0394	0443	0492		
32	0591	0640	0689	0738	0787	0836	0886	0935	0984	1033		
33	1082	1131	1181	1230	1279	1328	1377	1426	1476	1525		
34	1574	1623	1672	1721	1771	1820	1869	1918	1967	2016		
35	2066	2115	2164	2213	2262	2311	2360	2410	2459	2508		
36	2557	2606	2655	2705	2754	2803	2852	2901	2950	2999		
37	3049	3098	3147	3196	3245	3294	3343	3393	3442	3491		
38	3540	3589	3638	3687	3737	3786	3835	3884	3933	3982		
39	4031	4080	4130	4179	4228	4277	4326	4375	4424	4474		
8840	4523	4572	4621	4670	4719	4768	4817	4867	4916	4965		
41	5014	5063	5112	5161	5210	5260	5309	5358	5407	5456		
42	5505	5554	5603	5652	5702	5751	5800	5849	5898	5947		
43	5996	6045	6094	6144	6193	6242	6291	6340	6389	6438		
44	6487	6536	6586	6635	6684	6733	6782	6831	6880	6929		
45	6978	7027	7077	7126	7175	7224	7273	7322	7371	7420		
46	7469	7518	7568	7617	7666	7715	7764	7813	7862	7911		
47	7960	8009	8058	8108	8157	8206	8255	8304	8353	8402		
48	8451	8500	8549	8598	8647	8697	8746	8795	8844	8893		
49	8942	8991	9040	9089	9138	9187	9236	9285	9335	9384		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

50

1	5
2	10
3	15
4	20
5	25
6	30
7	35
8	40
9	45

49

1	5
2	10
3	15
4	20
5	25
6	29
7	34
8	39
9	44

N	0	1	2	3	4	5	6	7	8	9	D	Pro
8850	9469433	9482	9531	9580	9629	9678	9727	9776	9825	9874		
51	9923	9972	0022	0071	0120	0169	0218	0267	0316	0365		
52	9470414	0463	0512	0561	0610	0659	0708	0757	0807	0856		
53	0905	0954	1003	1052	1101	1150	1199	1248	1297	1346		
54	1395	1444	1493	1542	1591	1640	1689	1739	1788	1837		
55	1886	1935	1984	2033	2082	2131	2180	2229	2278	2327		
56	2376	2425	2474	2523	2572	2621	2670	2719	2768	2817		
57	2866	2915	2965	3014	3063	3112	3161	3210	3259	3308		
58	3357	3406	3455	3504	3553	3602	3651	3700	3749	3798		
59	3847	3896	3945	3994	4043	4092	4141	4190	4239	4288		
8860	4337	4386	4435	4484	4533	4582	4631	4680	4729	4778		
61	4827	4876	4925	4974	5023	5072	5121	5170	5219	5268		
62	5317	5366	5415	5464	5513	5562	5611	5660	5709	5758		
63	5807	5856	5905	5954	6003	6052	6101	6150	6199	6248		
64	6297	6346	6395	6444	6493	6542	6591	6640	6689	6738		
65	6787	6836	6885	6934	6983	7032	7081	7130	7179	7228		
66	7277	7326	7375	7424	7473	7522	7571	7620	7669	7718		
67	7767	7816	7865	7914	7963	8012	8061	8110	8159	8208		
68	8257	8306	8355	8404	8453	8502	8551	8600	8649	8698		
69	8747	8796	8844	8893	8942	8991	9040	9089	9138	9187		
8870	9236	9285	9334	9383	9432	9481	9530	9579	9628	9677		
71	9726	9775	9824	9873	9922	9971	0020	0068	0117	0166		
72	9480215	0264	0313	0362	0411	0460	0509	0558	0607	0656		
73	0705	0754	0803	0852	0901	0950	0998	1047	1096	1145		
74	1194	1243	1292	1341	1390	1439	1488	1537	1586	1635		
75	1684	1733	1781	1830	1879	1928	1977	2026	2075	2124		
76	2173	2222	2271	2320	2369	2418	2467	2515	2564	2613		
77	2662	2711	2760	2809	2858	2907	2956	3005	3054	3102		
78	3151	3200	3249	3298	3347	3396	3445	3494	3543	3592		
79	3641	3689	3738	3787	3836	3885	3934	3983	4032	4081		
8880	4130	4179	4227	4276	4325	4374	4423	4472	4521	4570		
81	4619	4668	4717	4765	4814	4863	4912	4961	5010	5059		
82	5108	5157	5205	5254	5303	5352	5401	5450	5499	5548		
83	5597	5646	5694	5743	5792	5841	5890	5939	5988	6037		
84	6085	6134	6183	6232	6281	6330	6379	6428	6477	6525		
85	6574	6623	6672	6721	6770	6819	6868	6916	6965	7014		
86	7063	7112	7161	7210	7259	7307	7356	7405	7454	7503		
87	7552	7601	7650	7698	7747	7796	7845	7894	7943	7992		
88	8040	8089	8138	8187	8236	8285	8334	8382	8431	8480		
89	8529	8578	8627	8676	8724	8773	8822	8871	8920	8969		
8890	9018	9066	9115	9164	9213	9262	9311	9360	9408	9457		
91	9506	9555	9604	9653	9701	9750	9799	9848	9897	9946		
92	9995	0043	0092	0141	0190	0239	0288	0336	0385	0434		
93	9490483	0532	0581	0629	0678	0727	0776	0825	0874	0922		
94	0971	1020	1069	1118	1167	1215	1264	1313	1362	1411		
95	1460	1508	1557	1606	1655	1704	1752	1801	1850	1899		
96	1948	1997	2045	2094	2143	2192	2241	2289	2338	2387		
97	2436	2485	2534	2582	2631	2680	2729	2778	2826	2875		
98	2924	2973	3022	3070	3119	3168	3217	3266	3314	3363		
99	3412	3461	3510	3558	3607	3656	3705	3754	3802	3851		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

50

1	5
2	10
3	15
4	20
5	25
6	30
7	35
8	40
9	45

49

49

1	5
2	10
3	15
4	20
5	25
6	29
7	34
8	39
9	44

N. 890 L. 949 OF NUMBERS.

N	O	I	2	3	4	5	6	7	8	9	D	Pro
8900	9493900	3949	3998	4046	4095	4144	4193	4242	4290	4339		
01	4388	4437	4486	4534	4583	4632	4681	4730	4778	4827		
02	4876	4925	4973	5022	5071	5120	5169	5217	5266	5315		
03	5364	5413	5461	5510	5559	5608	5656	5705	5754	5803		
04	5852	5900	5949	5998	6047	6095	6144	6193	6242	6290		
05	6339	6388	6437	6486	6534	6583	6632	6681	6729	6778		
06	6827	6876	6924	6973	7022	7071	7119	7168	7217	7266		
07	7315	7363	7412	7461	7510	7558	7607	7656	7705	7753		
08	7802	7851	7900	7948	7997	8046	8095	8143	8192	8241		
09	8290	8338	8387	8436	8485	8533	8582	8631	8680	8728		
8910	8777	8826	8875	8923	8972	9021	9069	9118	9167	9216		
11	9264	9313	9362	9411	9459	9508	9557	9606	9654	9703		
12	9752	9801	9849	9898	9947	9995	0044	0093	0142	0190		
13	9500239	0288	0337	0385	0434	0483	0531	0580	0629	0678		
14	0726	0775	0824	0872	0921	0970	1019	1067	1116	1165		
15	1213	1262	1311	1360	1408	1457	1506	1554	1603	1652		
16	1701	1749	1798	1847	1895	1944	1993	2042	2090	2139		
17	2188	2236	2285	2334	2382	2431	2480	2529	2577	2626		
18	2675	2723	2772	2821	2869	2918	2967	3016	3064	3113		
19	3162	3210	3259	3308	3356	3405	3454	3502	3551	3600		
8920	3049	3697	3746	3795	3843	3892	3941	3989	4038	4087		
21	4135	4184	4233	4281	4330	4379	4427	4476	4525	4574		
22	4622	4671	4720	4768	4817	4866	4914	4963	5012	5060		
23	5109	5158	5206	5255	5304	5352	5401	5450	5498	5547		
24	5596	5644	5693	5742	5790	5839	5888	5936	5985	6034		
25	6082	6131	6180	6228	6277	6326	6374	6423	6472	6520		
26	6569	6617	6666	6715	6763	6812	6861	6909	6958	7007		
27	7055	7104	7153	7201	7250	7299	7347	7396	7445	7493		
28	7542	7590	7639	7688	7736	7785	7834	7882	7931	7980		
29	8028	8077	8126	8174	8223	8271	8320	8369	8417	8466		
8930	8515	8563	8612	8660	8709	8758	8806	8855	8904	8952		
31	9001	9050	9098	9147	9195	9244	9293	9341	9390	9439		
32	9487	9536	9584	9633	9682	9730	9779	9827	9876	9925		
33	9973	0022	0071	0119	0168	0216	0265	0314	0362	0411		
34	9510459	0508	0557	0605	0654	0703	0751	0800	0848	0897		
35	0946	0994	1043	1091	1140	1189	1237	1286	1334	1383		
36	1432	1480	1529	1577	1626	1675	1723	1772	1820	1869		
37	1918	1966	2015	2063	2112	2161	2209	2258	2306	2355		
38	2404	2452	2501	2549	2598	2646	2695	2744	2792	2841		
39	2889	2938	2987	3035	3084	3132	3181	3229	3278	3327		
8940	3375	3424	3472	3521	3569	3618	3667	3715	3764	3812		
41	3861	3910	3958	4007	4055	4104	4152	4201	4250	4298		
42	4347	4395	4444	4492	4541	4589	4638	4687	4735	4784		
43	4832	4881	4929	4978	5027	5075	5124	5172	5221	5269		
44	5318	5366	5415	5464	5512	5561	5609	5658	5706	5755		
45	5803	5852	5901	5949	5998	6046	6095	6143	6192	6240		
46	6289	6337	6386	6435	6483	6532	6580	6629	6677	6726		
47	6774	6823	6871	6920	6969	7017	7066	7114	7163	7211		
48	7260	7308	7357	7405	7454	7502	7551	7599	7648	7697		
49	7745	7794	7842	7891	7939	7988	8036	8085	8133	8182		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

49

1	10
2	15
3	20
4	25
5	29
6	34
7	39
8	44

48

1	9
2	10
3	14
4	19
5	24
6	29
7	34
8	38
9	43

(166)

LOGARITHMS

N. 895 L. 951

N	O	I	2	3	4	5	6	7	8	9	D	Pro
8950	9518230	8279	8327	8376	8424	8473	8521	8570	8619	8667		
51	8716	8764	8813	8861	8910	8958	9007	9055	9104	9152		
52	9201	9249	9298	9346	9395	9443	9492	9540	9589	9637		
53	9686	9734	9783	9831	9880	9928	9977	0025	0074	0122		
54	9520171	0219	0268	0316	0365	0413	0462	0510	0559	0607		
55	0656	0704	0753	0801	0850	0898	0947	0995	1044	1092		
56	1141	1189	1238	1286	1335	1383	1432	1480	1529	1577		
57	1626	1674	1723	1771	1820	1868	1917	1965	2014	2062		
58	2111	2159	2208	2256	2305	2353	2401	2450	2498	2547		
59	2595	2644	2692	2741	2789	2838	2886	2935	2983	3032		
8960	3080	3129	3177	3226	3274	3322	3371	3419	3468	3516		
61	3565	3613	3662	3710	3759	3807	3856	3904	3952	4001		
62	4049	4098	4146	4195	4243	4292	4340	4389	4437	4486		
63	4534	4582	4631	4679	4728	4776	4825	4873	4922	4970		
64	5018	5067	5115	5164	5212	5261	5309	5358	5406	5454		
65	5503	5551	5600	5648	5697	5745	5794	5842	5890	5939		
66	5987	6036	6084	6133	6181	6230	6278	6326	6375	6423		
67	6472	6520	6569	6617	6665	6714	6762	6811	6859	6908		
68	6956	7004	7053	7101	7150	7198	7247	7295	7343	7392		
69	7440	7489	7537	7586	7634	7682	7731	7779	7828	7876		
8970	7924	7973	8021	8070	8118	8167	8215	8263	8312	8360		
71	8409	8457	8505	8554	8602	8651	8699	8747	8796	8844		
72	8893	8941	8989	9038	9086	9135	9183	9231	9280	9328		
73	9377	9425	9473	9522	9570	9619	9667	9715	9764	9812		
74	9861	9909	9957	0006	0054	0103	0151	0199	0248	0296		
75	9530345	0393	0441	0490	0538	0587	0635	0683	0732	0780		
76	0828	0877	0925	0974	1022	1070	1119	1167	1215	1264		
77	1312	1361	1409	1457	1506	1554	1603	1651	1699	1748		
78	1796	1844	1893	1941	1989	2038	2086	2135	2183	2231		
79	2280	2328	2376	2425	2473	2522	2570	2618	2667	2715		
8980	2763	2812	2860	2908	2957	3005	3054	3102	3150	3199		
81	3247	3295	3344	3392	3440	3489	3537	3585	3634	3682		
82	3731	3779	3827	3876	3924	3972	4021	4069	4117	4166		
83	4214	4262	4311	4359	4407	4456	4504	4552	4601	4649		
84	4697	4746	4794	4842	4891	4939	4987	5036	5084	5132		
85	5181	5229	5277	5326	5374	5422	5471	5519	5567	5616		
86	5664	5712	5761	5809	5857	5906	5954	6002	6051	6099		
87	6147	6196	6244	6292	6341	6389	6437	6486	6534	6582		
88	6631	6679	6727	6776	6824	6872	6921	6969	7017	7065		
89	7114	7162	7210	7259	7307	7355	7404	7452	7500	7549		
8990	7597	7645	7694	7742	7790	7838	7887	7935	7983	8032		
91	8080	8128	8177	8225	8273	8321	8370	8418	8466	8515		
92	8563	8611	8660	8708	8756	8804	8853	8901	8949	8998		
93	9046	9094	9143	9191	9239	9287	9336	9384	9432	9481		
94	9529	9577	9625	9674	9722	9770	9819	9867	9915	9963		
95	9540012	0060	0108	0157	0205	0253	0301	0350	0398	0446		
96	0494	0543	0591	0639	0688	0736	0784	0832	0881	0929		
97	0977	1025	1074	1122	1170	1219	1267	1315	1363	1412		
98	1460	1508	1556	1605	1653	1701	1749	1798	1846	1894		
99	1943	1991	2039	2087	2136	2184	2232	2280	2329	2377		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

49

1	5
2	10
3	15
4	20
5	25
6	29
7	34
8	39
9	44

48

1	5
2	10
3	14
4	19
5	24
6	29
7	34
8	38
9	43

N	O	I	2	3	4	5	6	7	8	9	D	Pro
9000	9542425	2473	2522	2570	2618	2666	2715	2763	2811	2859		
01	2908	2956	3004	3052	3101	3149	3197	3245	3294	3342		
02	3390	3438	3487	3535	3583	3631	3680	3728	3776	3824		
03	3873	3921	3969	4017	4065	4114	4162	4210	4258	4307		
04	4355	4403	4451	4500	4548	4596	4644	4692	4741	4789		
05	4837	4885	4934	4982	5030	5078	5127	5175	5223	5271		
06	5319	5368	5416	5464	5512	5561	5609	5657	5705	5753		
07	5802	5850	5898	5946	5994	6043	6091	6139	6187	6236		
08	6284	6332	6380	6428	6477	6525	6573	6621	6669	6718		
09	6766	6814	6862	6910	6959	7007	7055	7103	7152	7200		
9010	7248	7296	7344	7393	7441	7489	7537	7585	7634	7682		
11	7730	7778	7826	7874	7923	7971	8019	8067	8115	8164		
12	8212	8260	8308	8356	8405	8453	8501	8549	8597	8646		
13	8694	8742	8790	8838	8886	8935	8983	9031	9079	9127		
14	9176	9224	9272	9320	9368	9416	9465	9513	9561	9609		
15	9657	9705	9754	9802	9850	9898	9946	9995	0043	0091		
16	9550139	0187	0235	0284	0332	0380	0428	0476	0524	0573		
17	0621	0669	0717	0765	0813	0862	0910	0958	1006	1054		
18	1102	1150	1199	1247	1295	1343	1391	1439	1488	1536		
19	1584	1632	1680	1728	1776	1825	1873	1921	1969	2017		
9020	2065	2114	2162	2210	2258	2306	2354	2402	2451	2499		
21	2547	2595	2643	2691	2739	2788	2836	2884	2932	2980		
22	3028	3076	3125	3173	3221	3269	3317	3365	3413	3461		
23	3510	3558	3606	3654	3702	3750	3798	3846	3895	3943		
24	3991	4039	4087	4135	4183	4231	4280	4328	4376	4424		
25	4472	4520	4568	4616	4665	4713	4761	4809	4857	4905		
26	4953	5001	5050	5098	5146	5194	5242	5290	5338	5386		
27	5434	5483	5531	5579	5627	5675	5723	5771	5819	5867		
28	5916	5964	6012	6060	6108	6156	6204	6252	6300	6348		
29	6397	6445	6493	6541	6589	6637	6685	6733	6781	6829		
9030	6878	6926	6974	7022	7070	7118	7166	7214	7262	7310		
31	7358	7407	7455	7503	7551	7599	7647	7695	7743	7791		
32	7839	7887	7935	7984	8032	8080	8128	8176	8224	8272		
33	8320	8368	8416	8464	8512	8560	8609	8657	8705	8753		
34	8801	8849	8897	8945	8993	9041	9089	9137	9185	9234		
35	9282	9330	9378	9426	9474	9522	9570	9618	9666	9714		
36	9762	9810	9858	9906	9954	0003	0051	0099	0147	0195		
37	9560243	0291	0339	0387	0435	0483	0531	0579	0627	0675		
38	0723	0771	0819	0868	0916	0964	1012	1060	1108	1156		
39	1204	1252	1300	1348	1396	1444	1492	1540	1588	1636		
9040	1684	1732	1780	1828	1876	1925	1973	2021	2069	2117		
41	2165	2213	2261	2309	2357	2405	2453	2501	2549	2597		
42	2645	2693	2741	2789	2837	2885	2933	2981	3029	3077		
43	3125	3173	3221	3269	3317	3365	3413	3461	3509	3558		
44	3606	3654	3702	3750	3798	3846	3894	3942	3990	4038		
45	4086	4134	4182	4230	4278	4326	4374	4422	4470	4518		
46	4566	4614	4662	4710	4758	4806	4854	4902	4950	4998		
47	5046	5094	5142	5190	5238	5286	5334	5382	5430	5478		
48	5526	5574	5622	5670	5718	5766	5814	5862	5910	5958		
49	6006	6054	6102	6150	6198	6246	6294	6342	6390	6438		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

49

1	5
2	10
3	15
4	20
5	25
6	29
7	34
8	39
9	44

48

1	5
2	10
3	14
4	19
5	24
6	29
7	34
8	38
9	43

48

N	0	1	2	3	4	5	6	7	8	9	D	Pro.
9050	9566486	6534	6582	6630	6678	6726	6774	6822	6870	6918		
51	6966	7014	7062	7110	7158	7206	7254	7302	7349	7397		
52	7445	7493	7541	7589	7637	7685	7733	7781	7829	7877		
53	7925	7973	8021	8069	8117	8165	8213	8261	8309	8357		
54	8405	8453	8501	8549	8597	8645	8693	8741	8789	8837		
55	8885	8933	8980	9028	9076	9124	9172	9220	9268	9316		
56	9364	9412	9460	9508	9556	9604	9652	9700	9748	9796		
57	9844	9892	9940	9988	0035	0083	0131	0179	0227	0275		
58	9570323	0371	0419	0467	0515	0563	0611	0659	0707	0755		
59	0803	0851	0898	0946	0994	1042	1090	1138	1186	1234		
9060	1282	1330	1378	1426	1474	1522	1570	1618	1665	1713		
61	1761	1809	1857	1905	1953	2001	2049	2097	2145	2193		
62	2241	2289	2336	2384	2432	2480	2528	2576	2624	2672		
63	2720	2768	2816	2864	2911	2959	3007	3055	3103	3151		
64	3199	3247	3295	3343	3391	3439	3486	3534	3582	3630		
65	3678	3726	3774	3822	3870	3918	3966	4013	4061	4109		
66	4157	4205	4253	4301	4349	4397	4445	4492	4540	4588		
67	4636	4684	4732	4780	4828	4876	4924	4971	5019	5067		
68	5115	5163	5211	5259	5307	5355	5402	5450	5498	5546		
69	5594	5642	5690	5738	5786	5833	5881	5929	5977	6025		
9070	6073	6121	6169	6217	6264	6312	6360	6408	6456	6504		
71	6552	6600	6647	6695	6743	6791	6839	6887	6935	6983		
72	7030	7078	7126	7174	7222	7270	7318	7366	7413	7461		
73	7509	7557	7605	7653	7701	7748	7796	7844	7892	7940		
74	7988	8036	8083	8131	8179	8227	8275	8323	8371	8418		
75	8466	8514	8562	8610	8658	8706	8753	8801	8849	8897		
76	8945	8993	9041	9088	9136	9184	9232	9280	9328	9376		
77	9423	9471	9519	9567	9615	9663	9710	9758	9806	9854		
78	9902	9950	9997	0045	0093	0141	0189	0237	0284	0332		
79	9580380	0428	0476	0524	0571	0619	0667	0715	0763	0811		
9080	0858	0906	0954	1002	1050	1098	1145	1193	1241	1289		
81	1337	1385	1432	1480	1528	1576	1624	1672	1719	1767		
82	1815	1863	1911	1958	2006	2054	2102	2150	2198	2245		
83	2293	2341	2389	2437	2484	2532	2580	2628	2676	2723		
84	2771	2819	2867	2915	2962	3010	3058	3106	3154	3202		
85	3249	3297	3345	3393	3441	3488	3536	3584	3632	3680		
86	3727	3775	3823	3871	3919	3966	4014	4062	4110	4157		
87	4205	4253	4301	4349	4396	4444	4492	4540	4588	4635		
88	4683	4731	4779	4827	4874	4922	4970	5018	5065	5113		
89	5161	5209	5257	5304	5352	5400	5448	5495	5543	5591		
9090	5639	5687	5734	5782	5830	5878	5925	5973	6021	6069		
91	6117	6164	6212	6260	6308	6355	6403	6451	6499	6547		
92	6594	6642	6690	6738	6785	6833	6881	6929	6976	7024		
93	7072	7120	7167	7215	7263	7311	7358	7406	7454	7502		
94	7549	7597	7645	7693	7741	7788	7836	7884	7932	7979		
95	8027	8075	8123	8170	8218	8266	8314	8361	8409	8457		
96	8505	8552	8600	8648	8695	8743	8791	8839	8886	8934		
97	8982	9030	9077	9125	9173	9221	9268	9316	9364	9412		
98	9459	9507	9555	9603	9650	9698	9746	9793	9841	9889		
99	9937	9984	0032	0080	0128	0175	0223	0271	0318	0366		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

48

1	5
2	10
3	14
4	19
5	24
6	29
7	34
8	38
9	43

47

1	5
2	9
3	14
4	19
5	24
6	28
7	33
8	38
9	42

N	0	1	2	3	4	5	6	7	8	9	D	Pro
9100	9590414	0462	0509	0557	0605	0653	0700	0748	0796	0843		
01	0891	0939	0987	1034	1082	1130	1177	1225	1273	1321		
02	1368	1416	1464	1511	1559	1607	1655	1702	1750	1798		
03	1845	1893	1941	1989	2036	2084	2132	2179	2227	2275		
04	2322	2370	2418	2466	2513	2561	2609	2656	2704	2752		
05	2800	2847	2895	2943	2990	3038	3086	3133	3181	3229		
06	3276	3324	3372	3420	3467	3515	3563	3610	3658	3706		
07	3753	3801	3849	3896	3944	3992	4039	4087	4135	4183		
08	4230	4278	4326	4373	4421	4469	4516	4564	4612	4659		
09	4707	4755	4802	4850	4898	4945	4993	5041	5088	5136		
9110	5184	5231	5279	5327	5374	5422	5470	5517	5565	5613		
11	5660	5708	5756	5803	5851	5899	5946	5994	6042	6089		
12	6137	6185	6232	6280	6328	6375	6423	6471	6518	6566		
13	6614	6661	6709	6757	6804	6852	6900	6947	6995	7043		
14	7090	7138	7186	7233	7281	7328	7376	7424	7471	7519		
15	7567	7614	7662	7710	7757	7805	7853	7900	7948	7996		
16	8043	8091	8138	8186	8234	8281	8329	8377	8424	8472		
17	8520	8567	8615	8662	8710	8758	8805	8853	8901	8948		
18	8996	9044	9091	9139	9186	9234	9282	9329	9377	9425		
19	9472	9520	9567	9615	9663	9710	9758	9806	9853	9901		
9120	9948	9996	0044	0091	0139	0186	0234	0282	0329	0377		
21	9600425	0472	0520	0567	0615	0663	0710	0758	0805	0853		
22	0901	0948	0996	1044	1091	1139	1186	1234	1282	1329		
23	1377	1424	1472	1520	1567	1615	1662	1710	1758	1805		
24	1853	1900	1948	1996	2043	2091	2138	2186	2234	2281		
25	2329	2376	2424	2472	2519	2567	2614	2662	2709	2757		
26	2805	2852	2900	2947	2995	3043	3090	3138	3185	3233		
27	3281	3328	3376	3423	3471	3518	3566	3614	3661	3709		
28	3756	3804	3851	3899	3947	3994	4042	4089	4137	4184		
29	4232	4280	4327	4375	4422	4470	4517	4565	4613	4660		
9130	4708	4755	4803	4850	4898	4946	4993	5041	5088	5136		
31	5183	5231	5279	5326	5374	5421	5469	5516	5564	5611		
32	5659	5707	5754	5802	5849	5897	5944	5992	6039	6087		
33	6135	6182	6230	6277	6325	6372	6420	6467	6515	6563		
34	6610	6658	6705	6753	6800	6848	6895	6943	6990	7038		
35	7086	7133	7181	7228	7276	7323	7371	7418	7466	7513		
36	7561	7608	7656	7704	7751	7799	7846	7894	7941	7989		
37	8036	8084	8131	8179	8226	8274	8321	8369	8416	8464		
38	8512	8559	8607	8654	8702	8749	8797	8844	8892	8939		
39	8987	9034	9082	9129	9177	9224	9272	9319	9367	9414		
9140	9462	9509	9557	9605	9652	9700	9747	9795	9842	9890		
41	9937	9985	0032	0080	0127	0175	0222	0270	0317	0365		
42	9610412	0460	0507	0555	0602	0650	0697	0745	0792	0840		
43	0887	0935	0982	1030	1077	1125	1172	1220	1267	1315		
44	1362	1410	1457	1505	1552	1600	1647	1695	1742	1790		
45	1837	1885	1932	1980	2027	2075	2122	2170	2217	2264		
46	2312	2359	2407	2454	2502	2549	2597	2644	2692	2739		
47	2787	2834	2882	2929	2977	3024	3072	3119	3167	3214		
48	3262	3309	3357	3404	3451	3499	3546	3594	3641	3689		
49	3736	3784	3831	3879	3926	3974	4021	4069	4116	4163		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

48

1	5
2	10
3	15
4	19
5	24
6	29
7	34
8	38
9	43

47

1	5
2	9
3	14
4	19
5	24
6	28
7	33
8	38
9	42

(170)

LOGARITHMS

N. 915 L. 961

N	0	1	2	3	4	5	6	7	8	9	D	Pro
9150	9614211	4258	4306	4353	4401	4448	4496	4543	4591	4638		
51	4686	4733	4780	4828	4875	4923	4970	5018	5065	5113		
52	5160	5208	5255	5302	5350	5397	5445	5492	5540	5587		
53	5635	5682	5730	5777	5824	5872	5919	5967	6014	6062		
54	6109	6157	6204	6251	6299	6346	6394	6441	6489	6536		
55	6583	6631	6678	6726	6773	6821	6868	6916	6963	7010		
56	7058	7105	7153	7200	7248	7295	7342	7390	7437	7485		
57	7532	7580	7627	7674	7722	7769	7817	7864	7912	7959		
58	8006	8054	8101	8149	8196	8243	8291	8338	8386	8433		
59	8481	8528	8575	8623	8670	8718	8765	8812	8860	8907		
9160	8955	9002	9050	9097	9144	9192	9239	9287	9334	9381		
61	9429	9476	9524	9571	9618	9666	9713	9761	9808	9855		
62	9903	9950	9998	0045	0092	0140	0187	0235	0282	0329		
63	9620377	0424	0472	0519	0566	0614	0661	0709	0756	0803		
64	0851	0898	0946	0993	1040	1088	1135	1183	1230	1277		
65	1325	1372	1419	1467	1514	1562	1609	1656	1704	1751		
66	1799	1846	1893	1941	1988	2035	2083	2130	2178	2225		
67	2272	2320	2367	2414	2462	2509	2557	2604	2651	2699		
68	2746	2793	2841	2888	2936	2983	3030	3078	3125	3172		
69	3220	3267	3314	3362	3409	3457	3504	3551	3599	3646		
9170	3693	3741	3788	3835	3883	3930	3978	4025	4072	4120		
71	4167	4214	4262	4309	4356	4404	4451	4498	4546	4593		
72	4640	4688	4735	4783	4830	4877	4925	4972	5019	5067		
73	5114	5161	5209	5256	5303	5351	5398	5445	5493	5540		
74	5587	5635	5682	5729	5777	5824	5871	5919	5966	6013		
75	6061	6108	6155	6203	6250	6297	6345	6392	6439	6487		
76	6534	6581	6629	6676	6723	6771	6818	6865	6913	6960		
77	7007	7055	7102	7149	7197	7244	7291	7339	7386	7433		
78	7481	7528	7575	7622	7670	7717	7764	7812	7859	7906		
79	7954	8001	8048	8096	8143	8190	8238	8285	8332	8380		
9180	8427	8474	8521	8569	8616	8663	8711	8758	8805	8853		
81	8900	8947	8994	9042	9089	9136	9184	9231	9278	9326		
82	9373	9420	9467	9515	9562	9609	9657	9704	9751	9799		
83	9846	9893	9940	9988	0035	0082	0130	0177	0224	0271		
84	9630319	0366	0413	0461	0508	0555	0602	0650	0697	0744		
85	0792	0839	0886	0933	0981	1028	1075	1123	1170	1217		
86	1264	1312	1359	1406	1454	1501	1548	1595	1643	1690		
87	1737	1784	1832	1879	1926	1974	2021	2068	2115	2163		
88	2210	2257	2304	2352	2399	2446	2493	2541	2588	2635		
89	2683	2730	2777	2824	2872	2919	2966	3013	3061	3108		
9190	3155	3202	3250	3297	3344	3391	3439	3486	3533	3580		
91	3628	3675	3722	3769	3817	3864	3911	3958	4006	4053		
92	4100	4147	4195	4242	4289	4336	4384	4431	4478	4525		
93	4573	4620	4667	4714	4762	4809	4856	4903	4951	4998		
94	5045	5092	5139	5187	5234	5281	5328	5376	5423	5470		
95	5517	5565	5612	5659	5706	5753	5801	5848	5895	5942		
96	5990	6037	6084	6131	6179	6226	6273	6320	6367	6415		
97	6462	6509	6556	6604	6651	6698	6745	6792	6840	6887		
98	6934	6981	7028	7076	7123	7170	7217	7265	7312	7359		
99	7406	7453	7501	7548	7595	7642	7689	7737	7784	7831		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

48

1	5
2	10
3	14
4	19
5	24
6	29
7	34
8	38
9	43

47

1	5
2	9
3	14
4	19
5	24
6	28
7	33
8	38
9	42

N. 920 L. 963 OF NUMBERS. (171)

N	0	1	2	3	4	5	6	7	8	9	D	Pro
9200	9637878	7925	7973	8020	8067	8114	8161	8209	8256	8303		
01	8350	8398	8445	8492	8539	8586	8634	8681	8728	8775		
02	8822	8869	8917	8964	9011	9058	9105	9153	9200	9247		
03	9294	9341	9389	9436	9483	9530	9577	9625	9672	9719		
04	9766	9813	9860	9908	9955	0002	0049	0096	0144	0191		
05	9640238	0285	0332	0379	0427	0474	0521	0568	0615	0663		
06	0710	0757	0804	0851	0898	0946	0993	1040	1087	1134		
07	1181	1229	1276	1323	1370	1417	1464	1512	1559	1606		
08	1653	1700	1747	1795	1842	1889	1936	1983	2030	2078		
09	2125	2172	2219	2266	2313	2361	2408	2455	2502	2549		
9210	2596	2643	2691	2738	2785	2832	2879	2926	2974	3021		
11	3068	3115	3162	3209	3256	3304	3351	3398	3445	3492		47
12	3539	3586	3634	3681	3728	3775	3822	3869	3916	3964		1
13	4011	4058	4105	4152	4199	4246	4294	4341	4388	4435		2
14	4482	4529	4576	4623	4671	4718	4765	4812	4859	4906		3
15	4953	5001	5048	5095	5142	5189	5236	5283	5330	5378		4
16	5425	5472	5519	5566	5613	5660	5707	5755	5802	5849		5
17	5896	5943	5990	6037	6084	6131	6179	6226	6273	6320		6
18	6367	6414	6461	6508	6555	6603	6650	6697	6744	6791		7
19	6838	6885	6932	6979	7027	7074	7121	7168	7215	7262		8
9220	7309	7356	7403	7451	7498	7545	7592	7639	7686	7733		9
21	7780	7827	7874	7922	7969	8016	8063	8110	8157	8204		
22	8251	8298	8345	8392	8440	8487	8534	8581	8628	8675		
23	8722	8769	8816	8863	8910	8958	9005	9052	9099	9146		
24	9193	9240	9287	9334	9381	9428	9475	9523	9570	9617		
25	9664	9711	9758	9805	9852	9899	9946	9993	0040	0087		
26	9650135	0182	0229	0276	0323	0370	0417	0464	0511	0558		
27	0605	0652	0699	0746	0793	0841	0888	0935	0982	1029		
28	1076	1123	1170	1217	1264	1311	1358	1405	1452	1499		
29	1546	1594	1641	1688	1735	1782	1829	1876	1923	1970		
9230	2017	2064	2111	2158	2205	2252	2299	2346	2393	2440		
31	2488	2535	2582	2629	2676	2723	2770	2817	2864	2911		46
32	2958	3005	3052	3099	3146	3193	3240	3287	3334	3381		1
33	3428	3475	3522	3569	3617	3664	3711	3758	3805	3852		2
34	3899	3946	3993	4040	4087	4134	4181	4228	4275	4322		3
35	4369	4416	4463	4510	4557	4604	4651	4698	4745	4792		4
36	4839	4886	4933	4980	5027	5074	5121	5168	5215	5262		5
37	5309	5356	5403	5450	5497	5545	5592	5639	5686	5733		6
38	5780	5827	5874	5921	5968	6015	6062	6109	6156	6203		7
39	6250	6297	6344	6391	6438	6485	6532	6579	6626	6673		8
9240	6720	6767	6814	6861	6908	6955	7002	7049	7096	7143		9
41	7190	7237	7284	7331	7378	7425	7472	7519	7566	7613		
42	7660	7707	7754	7801	7848	7895	7942	7989	8036	8083		
43	8130	8177	8224	8270	8317	8364	8411	8458	8505	8552		
44	8599	8646	8693	8740	8787	8834	8881	8928	8975	9022		
45	9069	9116	9163	9210	9257	9304	9351	9398	9445	9492		
46	9539	9586	9633	9680	9727	9774	9821	9868	9915	9962		
47	9660009	0056	0103	0149	0196	0243	0290	0337	0384	0431		
48	0478	0525	0572	0619	0666	0713	0760	0807	0854	0901		
49	0948	0995	1042	1089	1136	1183	1230	1276	1323	1370		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

(172)

LOGARITHMS

N. 925 L. 966

N	0	1	2	3	4	5	6	7	8	9	D	Pro
9250	9661417	1464	1511	1558	1605	1652	1699	1746	1793	1840		
51	1887	1934	1981	2028	2075	2122	2168	2215	2262	2309		
52	2356	2403	2450	2497	2544	2591	2638	2685	2732	2779		
53	2826	2873	2919	2966	3013	3060	3107	3154	3201	3248		
54	3295	3342	3389	3436	3483	3530	3577	3623	3670	3717		
55	3764	3811	3858	3905	3952	3999	4046	4093	4140	4187		
56	4233	4280	4327	4374	4421	4468	4515	4562	4609	4656		
57	4703	4750	4796	4843	4890	4937	4984	5031	5078	5125		
58	5172	5219	5266	5312	5359	5406	5453	5500	5547	5594		
59	5641	5688	5735	5782	5828	5875	5922	5969	6016	6063		
9260	6110	6157	6204	6251	6297	6344	6391	6438	6485	6532		
61	6579	6626	6673	6720	6766	6813	6860	6907	6954	7001		
62	7048	7095	7142	7188	7235	7282	7329	7376	7423	7470		
63	7517	7564	7610	7657	7704	7751	7798	7845	7892	7939		
64	7985	8032	8079	8126	8173	8220	8267	8314	8360	8407		
65	8454	8501	8548	8595	8642	8689	8735	8782	8829	8876		
66	8923	8970	9017	9064	9110	9157	9204	9251	9298	9345		
67	9392	9438	9485	9532	9579	9626	9673	9720	9767	9813		
68	9860	9907	9954	0001	0048	0095	0141	0188	0235	0282		
69	9670329	0376	0423	0469	0516	0563	0610	0657	0704	0750		
9270	0797	0844	0891	0938	0985	1032	1078	1125	1172	1219		
71	1266	1313	1359	1406	1453	1500	1547	1594	1641	1687		
72	1734	1781	1828	1875	1922	1968	2015	2062	2109	2156		
73	2203	2249	2296	2343	2390	2437	2484	2530	2577	2624		
74	2671	2718	2765	2811	2858	2905	2952	2999	3046	3092		
75	3139	3186	3233	3280	3326	3373	3420	3467	3514	3561		
76	3607	3654	3701	3748	3795	3841	3888	3935	3982	4029		
77	4076	4122	4169	4216	4263	4310	4356	4403	4450	4497		
78	4544	4590	4637	4684	4731	4778	4825	4871	4918	4965		
79	5012	5059	5105	5152	5199	5246	5293	5339	5386	5433		
9280	5480	5527	5573	5620	5667	5714	5761	5807	5854	5901		
81	5948	5995	6041	6088	6135	6182	6228	6275	6322	6369		
82	6416	6462	6509	6556	6603	6650	6696	6743	6790	6837		
83	6884	6930	6977	7024	7071	7117	7164	7211	7258	7305		
84	7351	7398	7445	7492	7538	7585	7632	7679	7726	7772		
85	7819	7866	7913	7959	8006	8053	8100	8146	8193	8240		
86	8287	8334	8380	8427	8474	8521	8567	8614	8661	8708		
87	8754	8801	8848	8895	8942	8988	9035	9082	9129	9175		
88	9222	9269	9316	9362	9409	9456	9503	9549	9596	9643		
89	9690	9736	9783	9830	9877	9923	9970	0017	0064	0110		
9290	9680157	0204	0251	0297	0344	0391	0438	0484	0531	0578		
91	0625	0671	0718	0765	0812	0858	0905	0952	0999	1045		
92	1092	1139	1185	1232	1279	1326	1372	1419	1466	1513		
93	1559	1606	1653	1700	1746	1793	1840	1886	1933	1980		
94	2027	2073	2120	2167	2214	2260	2307	2354	2400	2447		
95	2494	2541	2587	2634	2681	2728	2774	2821	2868	2914		
96	2961	3008	3055	3101	3148	3195	3241	3288	3335	3382		
97	3428	3475	3522	3568	3615	3662	3709	3755	3802	3849		
98	3895	3942	3989	4036	4082	4129	4176	4222	4269	4316		
99	4362	4409	4456	4503	4549	4596	4643	4689	4736	4783		
N	0	1	2	3	4	5	6	7	8	9	D	Pro

47

1	5
2	9
3	14
4	19
5	24
6	28
7	33
8	38
9	42

46

1	5
2	9
3	14
4	18
5	23
6	28
7	32
8	37
9	41

N	O	I	2	3	4	5	6	7	8	9	D	Pro
9300	9684829	4876	4923	4970	5016	5063	5110	5156	5203	5250		
01	5296	5343	5390	5437	5483	5530	5577	5623	5670	5717		
02	5763	5810	5857	5903	5950	5997	6043	6090	6137	6184		
03	6230	6277	6324	6370	6417	6464	6510	6557	6604	6650		
04	6697	6744	6790	6837	6884	6930	6977	7024	7070	7117		
05	7164	7210	7257	7304	7350	7397	7444	7490	7537	7584		
06	7630	7677	7724	7770	7817	7864	7910	7957	8004	8050		
07	8097	8144	8190	8237	8284	8330	8377	8424	8470	8517		
08	8564	8610	8657	8704	8750	8797	8844	8890	8937	8984		
09	9030	9077	9124	9170	9217	9264	9310	9357	9404	9450		
9310	9497	9543	9590	9637	9683	9730	9777	9823	9870	9917		
11	9963	0010	0057	0103	0150	0196	0243	0290	0336	0383		
12	9690430	0476	0523	0570	0616	0663	0709	0756	0803	0849		
13	0896	0943	0989	1036	1083	1129	1176	1222	1269	1316		
14	1362	1409	1456	1502	1549	1595	1642	1689	1735	1782		
15	1829	1875	1922	1968	2015	2062	2108	2155	2202	2248		
16	2295	2341	2388	2435	2481	2528	2574	2621	2668	2714		
17	2761	2808	2854	2901	2947	2994	3041	3087	3134	3180		
18	3227	3274	3320	3367	3413	3460	3507	3553	3600	3647		
19	3693	3740	3786	3833	3880	3926	3973	4019	4066	4113		
9320	4159	4206	4252	4299	4346	4392	4439	4485	4532	4578		
21	4625	4672	4718	4765	4811	4858	4905	4951	4998	5044		
22	5091	5138	5184	5231	5277	5324	5371	5417	5464	5510		
23	5557	5603	5650	5697	5743	5790	5836	5883	5929	5976		
24	6023	6069	6116	6162	6209	6256	6302	6349	6395	6442		
25	6488	6535	6582	6628	6675	6721	6768	6814	6861	6908		
26	6954	7001	7047	7094	7140	7187	7234	7280	7327	7373		
27	7420	7466	7513	7559	7606	7653	7699	7746	7792	7839		
28	7885	7932	7978	8025	8072	8118	8165	8211	8258	8304		
29	8351	8397	8444	8491	8537	8584	8630	8677	8723	8770		
9330	8816	8863	8910	8956	9003	9049	9096	9142	9189	9235		
31	9282	9328	9375	9422	9468	9515	9561	9608	9654	9701		
32	9747	9794	9840	9887	9933	9980	0027	0073	0120	0166		
33	9700213	0259	0306	0352	0399	0445	0492	0538	0585	0631		
34	0678	0724	0771	0818	0864	0911	0957	1004	1050	1097		
35	1143	1190	1236	1283	1329	1376	1422	1469	1515	1562		
36	1608	1655	1701	1748	1794	1841	1888	1934	1981	2027		
37	2074	2120	2167	2213	2260	2306	2353	2399	2446	2492		
38	2539	2585	2632	2678	2725	2771	2818	2864	2911	2957		
39	3004	3050	3097	3143	3190	3236	3283	3329	3376	3422		
9340	3469	3515	3562	3608	3655	3701	3748	3794	3841	3887		
41	3934	3980	4027	4073	4120	4166	4213	4259	4306	4352		
42	4399	4445	4492	4538	4585	4631	4678	4724	4771	4817		
43	4863	4910	4956	5003	5049	5096	5142	5189	5235	5282		
44	5328	5375	5421	5468	5514	5561	5607	5654	5700	5747		
45	5793	5840	5886	5932	5979	6025	6072	6118	6165	6211		
46	6258	6304	6351	6397	6444	6490	6537	6583	6629	6676		
47	6722	6769	6815	6862	6908	6955	7001	7048	7094	7141		
48	7187	7233	7280	7326	7373	7419	7466	7512	7559	7605		
49	7652	7698	7745	7791	7837	7884	7930	7977	8023	8070		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

47
1 5
2 9
3 14
4 19
5 24
6 28
7 33
8 38
9 42

46
1 5
2 9
3 14
4 18
5 23
6 28
7 32
8 37
9 41

(174)

LOGARITHMS

N. 935 L. 970

N	0	1	2	3	4	5	6	7	8	9	D	Pro
9350	9708116	8163	8209	8255	8302	8348	8395	8441	8488	8534		
51	8581	8627	8673	8720	8766	8813	8859	8906	8952	8999		
52	9045	9091	9138	9184	9231	9277	9324	9370	9416	9463		
53	9509	9556	9602	9649	9695	9742	9788	9834	9881	9927		
54	9974	0020	0067	0113	0159	0206	0252	0299	0345	0391		
55	9710438	0484	0531	0577	0624	0670	0716	0763	0809	0856		
56	0902	0949	0995	1041	1088	1134	1181	1227	1273	1320		
57	1366	1413	1459	1506	1552	1598	1645	1691	1738	1784		
58	1830	1877	1923	1970	2016	2062	2109	2155	2202	2248		
59	2294	2341	2387	2434	2480	2526	2573	2619	2666	2712		
9360	2758	2805	2851	2898	2944	2990	3037	3083	3130	3176		
61	3222	3269	3315	3362	3408	3454	3501	3547	3594	3640		
62	3686	3733	3779	3826	3872	3918	3965	4011	4057	4104		
63	4150	4197	4243	4289	4336	4382	4429	4475	4521	4568		
64	4614	4660	4707	4753	4800	4846	4892	4939	4985	5031		
65	5078	5124	5171	5217	5263	5310	5356	5402	5449	5495		
66	5542	5588	5634	5681	5727	5773	5820	5866	5912	5959		
67	6005	6052	6098	6144	6191	6237	6283	6330	6376	6422		
68	6469	6515	6562	6608	6654	6701	6747	6793	6840	6886		
69	6932	6979	7025	7071	7118	7164	7211	7257	7303	7350		
9370	7396	7442	7489	7535	7581	7628	7674	7720	7767	7813		
71	7859	7906	7952	7998	8045	8091	8137	8184	8230	8276		
72	8323	8369	8415	8462	8508	8554	8601	8647	8694	8740		
73	8786	8833	8879	8925	8972	9018	9064	9111	9157	9203		
74	9249	9296	9342	9388	9435	9481	9527	9574	9620	9666		
75	9713	9759	9805	9852	9898	9944	9991	0037	0083	0130		
76	9720176	0222	0269	0315	0361	0408	0454	0500	0547	0593		
77	0639	0685	0732	0778	0824	0871	0917	0963	1010	1056		
78	1102	1149	1195	1241	1288	1334	1380	1426	1473	1519		
79	1565	1612	1658	1704	1751	1797	1843	1889	1936	1982		
9380	2028	2075	2121	2167	2214	2260	2306	2352	2399	2445		
81	2491	2538	2584	2630	2677	2723	2769	2815	2862	2908		
82	2954	3001	3047	3093	3139	3186	3232	3278	3325	3371		
83	3417	3463	3510	3556	3602	3649	3695	3741	3787	3834		
84	3880	3926	3973	4019	4065	4111	4158	4204	4250	4296		
85	4343	4389	4435	4482	4528	4574	4620	4667	4713	4759		
86	4805	4852	4898	4944	4991	5037	5083	5129	5176	5222		
87	5268	5314	5361	5407	5453	5500	5546	5592	5638	5685		
88	5731	5777	5823	5870	5916	5962	6008	6055	6101	6147		
89	6193	6240	6286	6332	6378	6425	6471	6517	6563	6610		
9390	6656	6702	6748	6795	6841	6887	6933	6980	7026	7072		
91	7118	7165	7211	7257	7303	7350	7396	7442	7488	7535		
92	7581	7627	7673	7720	7766	7812	7858	7905	7951	7997		
93	8043	8089	8136	8182	8228	8274	8321	8367	8413	8459		
94	8506	8552	8598	8644	8690	8737	8783	8829	8875	8922		
95	8968	9014	9060	9107	9153	9199	9245	9291	9338	9384		
96	9430	9476	9523	9569	9615	9661	9707	9754	9800	9846		
97	9892	9938	9985	0031	0077	0123	0170	0216	0262	0308		
98	9730354	0401	0447	0493	0539	0585	0632	0678	0724	0770		
99	0816	0863	0909	0955	1001	1048	1094	1140	1186	1232		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

47

1	5
2	9
3	14
4	19
5	24
6	28
7	33
8	38
9	42

46

1	5
2	9
3	14
4	18
5	23
6	28
7	32
8	37
9	41

N	O	I	2	3	4	5	6	7	8	9	D	Pro
9400	9731279	1325	1371	1417	1463	1510	1556	1602	1648	1694		
01	1741	1787	1833	1879	1925	1972	2018	2064	2110	2156		
02	2202	2249	2295	2341	2387	2433	2480	2526	2572	2618		
03	2664	2711	2757	2803	2849	2895	2941	2988	3034	3080		
04	3126	3172	3219	3265	3311	3357	3403	3449	3496	3542		
05	3588	3634	3680	3727	3773	3819	3865	3911	3957	4004		
06	4050	4096	4142	4188	4234	4281	4327	4373	4419	4465		
07	4511	4558	4604	4650	4696	4742	4788	4835	4881	4927		
08	4973	5019	5065	5112	5158	5204	5250	5296	5342	5389		
09	5435	5481	5527	5573	5619	5665	5712	5758	5804	5850		
9410	5896	5942	5989	6035	6081	6127	6173	6219	6265	6312		
11	6358	6404	6450	6496	6542	6588	6635	6681	6727	6773		
12	6819	6865	6911	6958	7004	7050	7096	7142	7188	7234		
13	7281	7327	7373	7419	7465	7511	7557	7604	7650	7696		
14	7742	7788	7834	7880	7926	7973	8019	8065	8111	8157		
15	8203	8249	8295	8342	8388	8434	8480	8526	8572	8618		
16	8664	8711	8757	8803	8849	8895	8941	8987	9033	9080		
17	9126	9172	9218	9264	9310	9356	9402	9449	9495	9541		
18	9587	9633	9679	9725	9771	9817	9864	9910	9956	0002		
19	9740048	0094	0140	0186	0232	0279	0325	0371	0417	0463		
9420	0509	0555	0601	0647	0693	0740	0786	0832	0878	0924		
21	0970	1016	1062	1108	1154	1201	1247	1293	1339	1385		
22	1431	1477	1523	1569	1615	1661	1707	1754	1800	1846		
23	1892	1938	1984	2030	2076	2122	2168	2215	2261	2307		
24	2353	2399	2445	2491	2537	2583	2629	2675	2721	2768		
25	2814	2860	2906	2952	2998	3044	3090	3136	3182	3228		
26	3274	3320	3367	3413	3459	3505	3551	3597	3643	3689		
27	3735	3781	3827	3873	3919	3965	4011	4058	4104	4150		
28	4196	4242	4288	4334	4380	4426	4472	4518	4564	4610		
29	4656	4702	4748	4795	4841	4887	4933	4979	5025	5071		
9430	5117	5163	5209	5255	5301	5347	5393	5439	5485	5531		
31	5577	5623	5670	5716	5762	5808	5854	5900	5946	5992		
32	6038	6084	6130	6176	6222	6268	6314	6360	6406	6452		
33	6498	6544	6590	6636	6683	6729	6775	6821	6867	6913		
34	6959	7005	7051	7097	7143	7189	7235	7281	7327	7373		
35	7419	7465	7511	7557	7603	7649	7695	7741	7787	7833		
36	7879	7925	7971	8017	8063	8109	8155	8201	8248	8294		
37	8340	8386	8432	8478	8524	8570	8616	8662	8708	8754		
38	8800	8846	8892	8938	8984	9030	9076	9122	9168	9214		
39	9260	9306	9352	9398	9444	9490	9536	9582	9628	9674		
9440	9720	9766	9812	9858	9904	9950	9996	0042	0088	0134		
41	9750180	0226	0272	0318	0364	0410	0456	0502	0548	0594		
42	0640	0686	0732	0778	0824	0870	0916	0962	1008	1054		
43	1100	1146	1192	1238	1284	1330	1376	1422	1468	1514		
44	1560	1606	1652	1698	1744	1790	1836	1882	1928	1974		
45	2020	2066	2112	2158	2204	2250	2296	2341	2387	2433		
46	2479	2525	2571	2617	2663	2709	2755	2801	2847	2893		
47	2939	2985	3031	3077	3123	3169	3215	3261	3307	3353		
48	3399	3445	3491	3537	3583	3629	3675	3721	3767	3813		
49	3858	3904	3950	3996	4042	4088	4134	4180	4226	4272		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

46

1	5
2	9
3	14
4	18
5	23
6	28
7	32
8	37
9	41

45

1	5
2	9
3	14
4	18
5	23
6	27
7	32
8	36
9	41

46

(176)

LOGARITHMS

N. 945 L. 975

N	0	1	2	3	4	5	6	7	8	9	D	Pro
9450	9754318	4364	4410	4456	4502	4548	4594	4640	4686	4732		
51	4778	4824	4870	4915	4961	5007	5053	5099	5145	5191		
52	5237	5283	5329	5375	5421	5467	5513	5559	5605	5651		
53	5697	5743	5788	5834	5880	5926	5972	6018	6064	6110		
54	6156	6202	6248	6294	6340	6386	6432	6478	6523	6569		
55	6615	6661	6707	6753	6799	6845	6891	6937	6983	7029		
56	7075	7121	7166	7212	7258	7304	7350	7396	7442	7488		
57	7534	7580	7626	7672	7718	7763	7809	7855	7901	7947		
58	7993	8039	8085	8131	8177	8223	8269	8315	8360	8406		
59	8452	8498	8544	8590	8636	8682	8728	8774	8820	8865		
9460	8911	8957	9003	9049	9095	9141	9187	9233	9279	9325		
61	9370	9416	9462	9508	9554	9600	9646	9692	9738	9784		
62	9829	9875	9921	9967	0013	0059	0105	0151	0197	0243		
63	9760288	0334	0380	0426	0472	0518	0564	0610	0656	0701		
64	0747	0793	0839	0885	0931	0977	1023	1069	1114	1160		
65	1206	1252	1298	1344	1390	1436	1481	1527	1573	1619		
66	1665	1711	1757	1803	1849	1894	1940	1986	2032	2078		
67	2124	2170	2216	2261	2307	2353	2399	2445	2491	2537		
68	2582	2628	2674	2720	2766	2812	2858	2904	2949	2995		
69	3041	3087	3133	3179	3225	3270	3316	3362	3408	3454		
9470	3500	3546	3592	3637	3683	3729	3775	3821	3867	3913		
71	3958	4004	4050	4096	4142	4188	4233	4279	4325	4371		
72	4417	4463	4509	4554	4600	4646	4692	4738	4784	4830		
73	4875	4921	4967	5013	5059	5105	5150	5196	5242	5288		
74	5334	5380	5425	5471	5517	5563	5609	5655	5701	5746		
75	5792	5838	5884	5930	5976	6021	6067	6113	6159	6205		
76	6251	6296	6342	6388	6434	6480	6525	6571	6617	6663		
77	6709	6755	6800	6846	6892	6938	6984	7030	7075	7121		
78	7167	7213	7259	7305	7350	7396	7442	7488	7534	7579		
79	7625	7671	7717	7763	7808	7854	7900	7946	7992	8038		
9480	8083	8129	8175	8221	8267	8312	8358	8404	8450	8496		
81	8541	8587	8633	8679	8725	8770	8816	8862	8908	8954		
82	9000	9045	9091	9137	9183	9229	9274	9320	9366	9412		
83	9458	9503	9549	9595	9641	9686	9732	9778	9824	9870		
84	9915	9961	0007	0053	0099	0144	0190	0236	0282	0328		
85	9770373	0419	0465	0511	0556	0602	0648	0694	0740	0785		
86	0831	0877	0923	0969	1014	1060	1106	1152	1197	1243		
87	1289	1335	1381	1426	1472	1518	1564	1609	1655	1701		
88	1747	1793	1838	1884	1930	1976	2021	2067	2113	2159		
89	2204	2250	2296	2342	2388	2433	2479	2525	2571	2616		
9490	2662	2708	2754	2799	2845	2891	2937	2982	3028	3074		
91	3120	3165	3211	3257	3303	3349	3394	3440	3486	3532		
92	3577	3623	3669	3715	3760	3806	3852	3898	3943	3989		
93	4035	4081	4126	4172	4218	4264	4309	4355	4401	4447		
94	4492	4538	4584	4630	4675	4721	4767	4812	4858	4904		
95	4950	4995	5041	5087	5133	5178	5224	5270	5316	5361		
96	5407	5453	5499	5544	5590	5636	5681	5727	5773	5819		
97	5864	5910	5956	6002	6047	6093	6139	6184	6230	6276		
98	6322	6367	6413	6459	6505	6550	6596	6642	6687	6733		
99	6779	6825	6870	6916	6962	7007	7053	7099	7145	7190		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

46

1	5
2	9
3	14
4	18
5	23
6	28
7	32
8	37
9	41

45

1	5
2	9
3	14
4	18
5	23
6	27
7	32
8	36
9	41

N	O	I	2	3	4	5	6	7	8	9	D	Pro
9500	9777236	7282	7327	7373	7419	7465	7510	7556	7602	7647		
01	7693	7739	7785	7830	7876	7922	7967	8013	8059	8105		
02	8150	8196	8242	8287	8333	8379	8424	8470	8516	8562		
03	8607	8653	8699	8744	8790	8836	8881	8927	8973	9019		
04	9064	9110	9156	9201	9247	9293	9338	9384	9430	9476		
05	9521	9567	9613	9658	9704	9750	9795	9841	9887	9932		
06	9978	0024	0069	0115	0161	0207	0252	0298	0344	0389		
07	9780435	0481	0526	0572	0618	0663	0709	0755	0800	0846		
08	0892	0937	0983	1029	1074	1120	1166	1211	1257	1303		
09	1348	1394	1440	1485	1531	1577	1622	1668	1714	1760		
9510	1805	1851	1897	1942	1988	2033	2079	2125	2170	2216		
11	2262	2307	2353	2399	2444	2490	2536	2581	2627	2673		
12	2718	2764	2810	2855	2901	2947	2992	3038	3084	3129		
13	3175	3221	3266	3312	3358	3403	3449	3495	3540	3586		
14	3631	3677	3723	3768	3814	3860	3905	3951	3997	4042		
15	4088	4134	4179	4225	4270	4316	4362	4407	4453	4499		
16	4544	4590	4636	4681	4727	4773	4818	4864	4909	4955		
17	5001	5046	5092	5138	5183	5229	5274	5320	5366	5411		
18	5457	5503	5548	5594	5640	5685	5731	5776	5822	5868		
19	5913	5959	6005	6050	6096	6141	6187	6233	6278	6324		
9520	6369	6415	6461	6506	6552	6598	6643	6689	6734	6780		
21	6826	6871	6917	6962	7008	7054	7099	7145	7191	7236		
22	7282	7327	7373	7419	7464	7510	7555	7601	7647	7692		
23	7738	7783	7829	7875	7920	7966	8011	8057	8103	8148		
24	8194	8239	8285	8331	8376	8422	8467	8513	8559	8604		
25	8650	8695	8741	8787	8832	8878	8923	8969	9015	9060		
26	9106	9151	9197	9243	9288	9334	9379	9425	9470	9516		
27	9562	9607	9653	9698	9744	9790	9835	9881	9926	9972		
28	9790017	0063	0109	0154	0200	0245	0291	0337	0382	0428		
29	0473	0519	0564	0610	0656	0701	0747	0792	0838	0883		
9530	0929	0975	1020	1066	1111	1157	1202	1248	1294	1339		
31	1385	1430	1476	1521	1567	1613	1658	1704	1749	1795		
32	1840	1886	1931	1977	2023	2068	2114	2159	2205	2250		
33	2296	2341	2387	2433	2478	2524	2569	2615	2660	2706		
34	2751	2797	2843	2888	2934	2979	3025	3070	3116	3161		
35	3207	3253	3298	3344	3389	3435	3480	3526	3571	3617		
36	3662	3708	3754	3799	3845	3890	3936	3981	4027	4072		
37	4118	4163	4209	4254	4300	4346	4391	4437	4482	4528		
38	4573	4619	4664	4710	4755	4801	4846	4892	4937	4983		
39	5028	5074	5120	5165	5211	5256	5302	5347	5393	5438		
9540	5484	5529	5575	5620	5666	5711	5757	5802	5848	5893		
41	5939	5984	6030	6076	6121	6167	6212	6258	6303	6349		
42	6394	6440	6485	6531	6576	6622	6667	6713	6758	6804		
43	6849	6895	6940	6986	7031	7077	7122	7168	7213	7259		
44	7304	7350	7395	7441	7486	7532	7577	7623	7668	7714		
45	7759	7805	7850	7896	7941	7987	8032	8078	8123	8169		
46	8214	8260	8305	8351	8396	8442	8487	8533	8578	8624		
47	8669	8715	8760	8806	8851	8897	8942	8988	9033	9079		
48	9124	9170	9215	9261	9306	9352	9397	9442	9488	9533		
49	9579	9624	9670	9715	9761	9806	9852	9897	9943	9988		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

46

1	5
2	9
3	14
4	18
5	23
6	28
7	32
8	37
9	41

45

1	5
2	9
3	14
4	18
5	23
6	27
7	32
8	36
9	41

(178)

LOGARITHMS

N. 955 L. 980

N	O	I	2	3	4	5	6	7	8	9	D	Pro
9550	9800034	0079	0125	0170	0216	0261	0307	0352	0398	0443		
51	0488	0534	0579	0625	0670	0716	0761	0807	0852	0898		
52	0943	0989	1034	1080	1125	1170	1216	1261	1307	1352		
53	1398	1443	1489	1534	1580	1625	1671	1716	1761	1807		
54	1852	1898	1943	1989	2034	2080	2125	2171	2216	2261		
55	2307	2352	2398	2443	2489	2534	2580	2625	2671	2716		
56	2761	2807	2852	2898	2943	2989	3034	3080	3125	3170		
57	3216	3261	3307	3352	3398	3443	3489	3534	3579	3625		
58	3670	3716	3761	3807	3852	3897	3943	3988	4034	4079		
59	4125	4170	4215	4261	4306	4352	4397	4443	4488	4533		
9560	4579	4624	4670	4715	4761	4806	4851	4897	4942	4988		
61	5033	5079	5124	5169	5215	5260	5306	5351	5397	5442		
62	5487	5533	5578	5624	5669	5714	5760	5805	5851	5896		
63	5942	5987	6032	6078	6123	6169	6214	6259	6305	6350		
64	6396	6441	6486	6532	6577	6623	6668	6714	6759	6804		
65	6850	6895	6941	6986	7031	7077	7122	7168	7213	7258		
66	7304	7349	7395	7440	7485	7531	7576	7622	7667	7712		
67	7758	7803	7849	7894	7939	7985	8030	8075	8121	8166		
68	8212	8257	8302	8348	8393	8439	8484	8529	8575	8620		
69	8666	8711	8756	8802	8847	8892	8938	8983	9029	9074		
9570	9119	9165	9210	9256	9301	9346	9392	9437	9482	9528		
71	9573	9619	9664	9709	9755	9800	9845	9891	9936	9982		
72	9810027	0072	0118	0163	0208	0254	0299	0344	0390	0435		
73	0481	0526	0571	0617	0662	0707	0753	0798	0844	0889		
74	0934	0980	1025	1070	1116	1161	1206	1252	1297	1342		
75	1388	1433	1479	1524	1569	1615	1660	1705	1751	1796		
76	1841	1887	1932	1977	2023	2068	2113	2159	2204	2250		
77	2295	2340	2386	2431	2476	2522	2567	2612	2658	2703		
78	2748	2794	2839	2884	2930	2975	3020	3066	3111	3156		
79	3202	3247	3292	3338	3383	3428	3474	3519	3564	3610		
9580	3655	3700	3746	3791	3836	3882	3927	3972	4018	4063		
81	4108	4154	4199	4244	4290	4335	4380	4426	4471	4516		
82	4562	4607	4652	4698	4743	4788	4834	4879	4924	4970		
83	5015	5060	5106	5151	5196	5241	5287	5332	5377	5423		
84	5468	5513	5559	5604	5649	5695	5740	5785	5831	5876		
85	5921	5966	6012	6057	6102	6148	6193	6238	6284	6329		
86	6374	6420	6465	6510	6555	6601	6646	6691	6737	6782		
87	6827	6873	6918	6963	7008	7054	7099	7144	7190	7235		
88	7280	7326	7371	7416	7461	7507	7552	7597	7643	7688		
89	7733	7778	7824	7869	7914	7960	8005	8050	8095	8141		
9590	8186	8231	8277	8322	8367	8412	8458	8503	8548	8594		
91	8639	8684	8729	8775	8820	8865	8911	8956	9001	9046		
92	9092	9137	9182	9228	9273	9318	9363	9409	9454	9499		
93	9544	9590	9635	9680	9726	9771	9816	9861	9907	9952		
94	9997	0042	0088	0133	0178	0223	0269	0314	0359	0405		
95	9820450	0495	0540	0586	0631	0676	0721	0767	0812	0857		
96	0902	0948	0993	1038	1083	1129	1174	1219	1264	1310		
97	1355	1400	1445	1491	1536	1581	1626	1672	1717	1762		
98	1807	1853	1898	1943	1988	2034	2079	2124	2169	2215		
99	2260	2305	2350	2396	2441	2486	2531	2577	2622	2667		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

46

1	5
2	9
3	14
4	18
5	23
6	28
7	32
8	37
9	41

45

1	5
2	9
3	14
4	18
5	23
6	27
7	32
8	36
9	41

N	0	1	2	3	4	5	6	7	8	9	D	Pro
9600	9822712	2758	2803	2848	2893	2939	2984	3029	3074	3119		
01	3165	3210	3255	3300	3346	3391	3436	3481	3527	3572		
02	3617	3662	3707	3753	3798	3843	3888	3934	3979	4024		
03	4069	4115	4160	4205	4250	4295	4341	4386	4431	4476		
04	4522	4567	4612	4657	4702	4748	4793	4838	4883	4928		
05	4974	5019	5064	5109	5155	5200	5245	5290	5335	5381		
06	5426	5471	5516	5561	5607	5652	5697	5742	5787	5833		
07	5878	5923	5968	6014	6059	6104	6149	6194	6240	6285		
08	6330	6375	6420	6466	6511	6556	6601	6646	6692	6737		
09	6782	6827	6872	6918	6963	7008	7053	7098	7143	7189		
9610	7234	7279	7324	7369	7415	7460	7505	7550	7595	7641		
11	7686	7731	7776	7821	7867	7912	7957	8002	8047	8092		
12	8138	8183	8228	8273	8318	8364	8409	8454	8499	8544		
13	8589	8635	8680	8725	8770	8815	8860	8906	8951	8996		
14	9041	9086	9132	9177	9222	9267	9312	9357	9403	9448		
15	9493	9538	9583	9628	9674	9719	9764	9809	9854	9899		
16	9945	9990	0035	0080	0125	0170	0216	0261	0306	0351		
17	9830396	0441	0486	0532	0577	0622	0667	0712	0757	0803		
18	0848	0893	0938	0983	1028	1073	1119	1164	1209	1254		
19	1299	1344	1390	1435	1480	1525	1570	1615	1660	1706		
9620	1751	1796	1841	1886	1931	1976	2022	2067	2112	2157		
21	2202	2247	2292	2338	2383	2428	2473	2518	2563	2608		
22	2654	2699	2744	2789	2834	2879	2924	2969	3015	3060		
23	3105	3150	3195	3240	3285	3331	3376	3421	3466	3511		
24	3556	3601	3646	3692	3737	3782	3827	3872	3917	3962		
25	4007	4053	4098	4143	4188	4233	4278	4323	4368	4413		
26	4459	4504	4549	4594	4639	4684	4729	4774	4819	4865		
27	4910	4955	5000	5045	5090	5135	5180	5225	5271	5316		
28	5361	5406	5451	5496	5541	5586	5631	5677	5722	5767		
29	5812	5857	5902	5947	5992	6037	6082	6128	6173	6218		
9630	6263	6308	6353	6398	6443	6488	6533	6579	6624	6669		
31	6714	6759	6804	6849	6894	6939	6984	7029	7075	7120		
32	7165	7210	7255	7300	7345	7390	7435	7480	7525	7571		
33	7616	7661	7706	7751	7796	7841	7886	7931	7976	8021		
34	8066	8111	8157	8202	8247	8292	8337	8382	8427	8472		
35	8517	8562	8607	8652	8697	8743	8788	8833	8878	8923		
36	8968	9013	9058	9103	9148	9193	9238	9283	9328	9374		
37	9419	9464	9509	9554	9599	9644	9689	9734	9779	9824		
38	9869	9914	9959	0004	0049	0095	0140	0185	0230	0275		
39	9840320	0365	0410	0455	0500	0545	0590	0635	0680	0725		
9640	0770	0815	0860	0905	0951	0996	1041	1086	1131	1176		
41	1221	1266	1311	1356	1401	1446	1491	1536	1581	1626		
42	1671	1716	1761	1806	1851	1896	1942	1987	2032	2077		
43	2122	2167	2212	2257	2302	2347	2392	2437	2482	2527		
44	2572	2617	2662	2707	2752	2797	2842	2887	2932	2977		
45	3022	3067	3112	3157	3202	3247	3292	3338	3383	3428		
46	3473	3518	3563	3608	3653	3698	3743	3788	3833	3878		
47	3923	3968	4013	4058	4103	4148	4193	4238	4283	4328		
48	4373	4418	4463	4508	4553	4598	4643	4688	4733	4778		
49	4823	4868	4913	4958	5003	5048	5093	5138	5183	5228		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

46
1 5
2 9
3 14
4 18
5 23
6 28
7 32
8 37
9 41

45
1 5
2 9
3 14
4 18
5 23
6 27
7 32
8 36
9 41

(180)

LOGARITHMS

N. 965 L. 984

N	0	1	2	3	4	5	6	7	8	9	D	Pro
9650	9845273	5318	5363	5408	5453	5498	5543	5588	5633	5678	45	
51	5723	5768	5813	5858	5903	5948	5993	6038	6083	6128		
52	6173	6218	6263	6308	6353	6398	6443	6488	6533	6578		
53	6623	6668	6713	6758	6803	6848	6893	6938	6983	7028		
54	7073	7118	7163	7208	7253	7298	7343	7388	7433	7478		
55	7523	7568	7613	7658	7703	7748	7793	7838	7883	7928		
56	7973	8018	8063	8107	8152	8197	8242	8287	8332	8377		
57	8422	8467	8512	8557	8602	8647	8692	8737	8782	8827		
58	8872	8917	8962	9007	9052	9097	9142	9187	9232	9277		
59	9322	9367	9412	9457	9502	9546	9591	9636	9681	9726		
9660	9771	9816	9861	9906	9951	9996	0041	0086	0131	0176	45	
61	9850221	0266	0311	0356	0401	0446	0491	0535	0580	0625		
62	0670	0715	0760	0805	0850	0895	0940	0985	1030	1075		
63	1120	1165	1210	1255	1300	1345	1389	1434	1479	1524		
64	1569	1614	1659	1704	1749	1794	1839	1884	1929	1974		
65	2019	2064	2108	2153	2198	2243	2288	2333	2378	2423		
66	2468	2513	2558	2603	2648	2693	2737	2782	2827	2872		
67	2917	2962	3007	3052	3097	3142	3187	3232	3277	3321		
68	3366	3411	3456	3501	3546	3591	3636	3681	3726	3771		
69	3816	3861	3905	3950	3995	4040	4085	4130	4175	4220		
9670	4265	4310	4355	4399	4444	4489	4534	4579	4624	4669	44	
71	4714	4759	4804	4849	4893	4938	4983	5028	5073	5118		
72	5163	5208	5253	5298	5342	5387	5432	5477	5522	5567		
73	5612	5657	5702	5747	5791	5836	5881	5926	5971	6016		
74	6061	6106	6151	6196	6240	6285	6330	6375	6420	6465		
75	6510	6555	6600	6644	6689	6734	6779	6824	6869	6914		
76	6959	7003	7048	7093	7138	7183	7228	7273	7318	7363		
77	7407	7452	7497	7542	7587	7632	7677	7722	7766	7811		
78	7856	7901	7946	7991	8036	8081	8125	8170	8215	8260		
79	8305	8350	8395	8440	8484	8529	8574	8619	8664	8709		
9680	8754	8798	8843	8888	8933	8978	9023	9068	9112	9157	44	
81	9202	9247	9292	9337	9382	9426	9471	9516	9561	9606		
82	9651	9696	9740	9785	9830	9875	9920	9965	0010	0054		
83	9860099	0144	0189	0234	0279	0324	0368	0413	0458	0503		
84	0548	0593	0637	0682	0727	0772	0817	0862	0907	0951		
85	0996	1041	1086	1131	1176	1220	1265	1310	1355	1400		
86	1445	1489	1534	1579	1624	1669	1714	1758	1803	1848		
87	1893	1938	1983	2027	2072	2117	2162	2207	2252	2296		
88	2341	2386	2431	2476	2521	2565	2610	2655	2700	2745		
89	2790	2834	2879	2924	2969	3014	3058	3103	3148	3193		
9690	3238	3283	3327	3372	3417	3462	3507	3551	3596	3641	44	
91	3686	3731	3776	3820	3865	3910	3955	4000	4044	4089		
92	4134	4179	4224	4268	4313	4358	4403	4448	4493	4537		
93	4582	4627	4672	4717	4761	4806	4851	4896	4941	4985		
94	5030	5075	5120	5165	5209	5254	5299	5344	5389	5433		
95	5478	5523	5568	5613	5657	5702	5747	5792	5836	5881		
96	5926	5971	6016	6060	6105	6150	6195	6240	6284	6329		
97	6374	6419	6464	6508	6553	6598	6643	6687	6732	6777		
98	6822	6867	6911	6956	7001	7046	7090	7135	7180	7225		
99	7270	7314	7359	7404	7449	7493	7538	7583	7628	7673		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

N	O	I	2	3	4	5	6	7	8	9	D	Pro
9700	9867717	7762	7807	7852	7896	7941	7986	8031	8076	8120		
01	8165	8210	8255	8299	8344	8389	8434	8478	8523	8568		
02	8613	8657	8702	8747	8792	8837	8881	8926	8971	9016		
03	9060	9105	9150	9195	9239	9284	9329	9374	9418	9463		
04	9508	9553	9597	9642	9687	9732	9776	9821	9866	9911		
05	9955	0000	0045	0090	0134	0179	0224	0269	0313	0358		
06	9870403	0448	0492	0537	0582	0627	0671	0716	0761	0806		
07	0850	0895	0940	0985	1029	1074	1119	1163	1208	1253		
08	1298	1342	1387	1432	1477	1521	1566	1611	1656	1700		
09	1745	1790	1834	1879	1924	1969	2013	2058	2103	2148		
9710	2192	2237	2282	2326	2371	2416	2461	2505	2550	2595		45
11	2640	2684	2729	2774	2818	2863	2908	2953	2997	3042		1 5
12	3087	3131	3176	3221	3266	3310	3355	3400	3444	3489		2 9
13	3534	3579	3623	3668	3713	3757	3802	3847	3892	3936		3 14
14	3981	4026	4070	4115	4160	4205	4249	4294	4339	4383		4 18
15	4428	4473	4517	4562	4607	4652	4696	4741	4786	4830		5 23
16	4875	4920	4964	5009	5054	5099	5143	5188	5233	5277		6 27
17	5322	5367	5411	5456	5501	5545	5590	5635	5680	5724		7 32
18	5769	5814	5858	5903	5948	5992	6037	6082	6126	6171		8 36
19	6216	6261	6305	6350	6395	6439	6484	6529	6573	6618		9 41
9720	6663	6707	6752	6797	6841	6886	6931	6975	7020	7065		
21	7109	7154	7199	7243	7288	7333	7377	7422	7467	7511		
22	7556	7601	7646	7690	7735	7780	7824	7869	7914	7958		
23	8003	8048	8092	8137	8182	8226	8271	8316	8360	8405		
24	8450	8494	8539	8583	8628	8673	8717	8762	8807	8851		
25	8896	8941	8985	9030	9075	9119	9164	9209	9253	9298		
26	9343	9387	9432	9477	9521	9566	9611	9655	9700	9745		
27	9789	9834	9878	9923	9968	0012	0057	0102	0146	0191		
28	9880236	0280	0325	0370	0414	0459	0503	0548	0593	0637		
29	0682	0727	0771	0816	0861	0905	0950	0994	1039	1084		
9730	1128	1173	1218	1262	1307	1352	1396	1441	1485	1530		44
31	1575	1619	1664	1709	1753	1798	1842	1887	1932	1976		1 4
32	2021	2066	2110	2155	2200	2244	2289	2333	2378	2423		2 9
33	2467	2512	2556	2601	2646	2690	2735	2780	2824	2869		3 13
34	2913	2958	3003	3047	3092	3136	3181	3226	3270	3315		4 18
35	3360	3404	3449	3493	3538	3583	3627	3672	3716	3761		5 22
36	3806	3850	3895	3939	3984	4029	4073	4118	4162	4207		6 26
37	4252	4296	4341	4386	4430	4475	4519	4564	4609	4653		7 31
38	4698	4742	4787	4831	4876	4921	4965	5010	5054	5099		8 35
39	5144	5188	5233	5277	5322	5367	5411	5456	5500	5545		9 40
9740	5590	5634	5679	5723	5768	5813	5857	5902	5946	5991		
41	6035	6080	6125	6169	6214	6258	6303	6348	6392	6437		
42	6481	6526	6570	6615	6660	6704	6749	6793	6838	6882		
43	6927	6972	7016	7061	7105	7150	7194	7239	7284	7328		
44	7373	7417	7462	7506	7551	7596	7640	7685	7729	7774		
45	7818	7863	7908	7952	7997	8041	8086	8130	8175	8220		
46	8264	8309	8353	8398	8442	8487	8531	8576	8621	8665		
47	8710	8754	8799	8843	8888	8932	8977	9022	9066	9111		
48	9155	9200	9244	9289	9333	9378	9423	9467	9512	9556		
49	9601	9645	9690	9734	9779	9823	9868	9913	9957	0002		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

N	0	1	2	3	4	5	6	7	8	9	D	Pro
9750	9890046	0091	0135	0180	0224	0269	0313	0358	0402	0447		
51	0492	0536	0581	0625	0670	0714	0759	0803	0848	0892		
52	0937	0981	1026	1071	1115	1160	1204	1249	1293	1338		
53	1382	1427	1471	1516	1560	1605	1649	1694	1738	1783		
54	1828	1872	1917	1961	2006	2050	2095	2139	2184	2228		
55	2273	2317	2362	2406	2451	2495	2540	2584	2629	2673		
56	2718	2762	2807	2851	2896	2940	2985	3030	3074	3119		
57	3163	3208	3252	3297	3341	3386	3430	3475	3519	3564		
58	3608	3653	3697	3742	3786	3831	3875	3920	3964	4009		
59	4053	4098	4142	4187	4231	4276	4320	4365	4409	4454		
9760	4498	4543	4587	4632	4676	4721	4765	4810	4854	4899		
61	4943	4988	5032	5077	5121	5166	5210	5255	5299	5344		
62	5388	5433	5477	5521	5566	5610	5655	5699	5744	5788		
63	5833	5877	5922	5966	6011	6055	6100	6144	6189	6233		
64	6278	6322	6367	6411	6456	6500	6545	6589	6634	6678		
65	6722	6767	6811	6856	6900	6945	6989	7034	7078	7123		
66	7167	7212	7256	7301	7345	7390	7434	7478	7523	7567		
67	7612	7656	7701	7745	7790	7834	7879	7923	7968	8012		
68	8057	8101	8145	8190	8234	8279	8323	8368	8412	8457		
69	8501	8546	8590	8634	8679	8723	8768	8812	8857	8901		
9770	8946	8990	9035	9079	9123	9168	9212	9257	9301	9346		
71	9390	9435	9479	9523	9568	9612	9657	9701	9746	9790		
72	9835	9879	9923	9968	0012	0057	0101	0146	0190	0235		
73	9900	0279	0323	0368	0412	0457	0501	0546	0590	0634		
74	0723	0768	0812	0857	0901	0946	0990	1034	1079	1123		
75	1168	1212	1257	1301	1345	1390	1434	1479	1523	1568		
76	1612	1656	1701	1745	1790	1834	1878	1923	1967	2012		
77	2056	2101	2145	2189	2234	2278	2323	2367	2411	2456		
78	2500	2545	2589	2634	2678	2722	2767	2811	2856	2900		
79	2944	2989	3033	3078	3122	3167	3211	3255	3300	3344		
9780	3389	3433	3477	3522	3566	3611	3655	3699	3744	3788		
81	3833	3877	3921	3966	4010	4055	4099	4143	4188	4232		
82	4277	4321	4365	4410	4454	4499	4543	4587	4632	4676		
83	4721	4765	4809	4854	4898	4942	4987	5031	5076	5120		
84	5164	5209	5253	5298	5342	5386	5431	5475	5520	5564		
85	5608	5653	5697	5741	5786	5830	5875	5919	5963	6008		
86	6052	6096	6141	6185	6230	6274	6318	6363	6407	6452		
87	6496	6540	6585	6629	6673	6718	6762	6806	6851	6895		
88	6940	6984	7028	7073	7117	7161	7206	7250	7295	7339		
89	7383	7428	7472	7516	7561	7605	7649	7694	7738	7783		
9790	7827	7871	7916	7960	8004	8049	8093	8137	8182	8226		
91	8271	8315	8359	8404	8448	8492	8537	8581	8625	8670		
92	8714	8758	8803	8847	8891	8936	8980	9025	9069	9113		
93	9158	9202	9246	9291	9335	9379	9424	9468	9512	9557		
94	9601	9645	9690	9734	9778	9823	9867	9911	9956	0000		
95	9910	0044	0089	0133	0177	0222	0266	0310	0355	0399		
96	0488	0532	0576	0621	0665	0709	0754	0798	0842	0887		
97	0931	0975	1020	1064	1108	1153	1197	1241	1286	1330		
98	1374	1419	1463	1507	1552	1596	1640	1685	1729	1773		
99	1818	1862	1906	1951	1995	2039	2083	2128	2172	2216		
N	0	1	2	3	4	5	6	7	8	9	D	Pts

45

1	5
2	9
3	14
4	18
5	23
6	27
7	32
8	36
9	41

44

1	4
2	9
3	13
4	18
5	22
6	26
7	31
8	35
9	40

N. 980 L. 991

OF NUMBERS.

(183)

N	O	I	2	3	4	5	6	7	8	9	D	Pro
9800	9912261	2305	2349	2394	2438	2482	2527	2571	2615	2660		
01	2704	2748	2793	2837	2881	2925	2970	3014	3058	3103		
02	3147	3191	3236	3280	3324	3369	3413	3457	3501	3546		
03	3590	3634	3679	3723	3767	3812	3856	3900	3944	3989		
04	4033	4077	4122	4166	4210	4255	4299	4343	4387	4432		
05	4476	4520	4565	4609	4653	4697	4742	4786	4830	4875		
06	4919	4963	5007	5052	5096	5140	5185	5229	5273	5317		
07	5362	5406	5450	5495	5539	5583	5627	5672	5716	5760		
08	5805	5849	5893	5937	5982	6026	6070	6115	6159	6203		
09	6247	6292	6336	6380	6424	6469	6513	6557	6602	6646		
9810	6690	6734	6779	6823	6867	6911	6956	7000	7044	7088		
11	7133	7177	7221	7266	7310	7354	7398	7443	7487	7531		
12	7575	7620	7664	7708	7752	7797	7841	7885	7929	7974		
13	8018	8062	8107	8151	8195	8239	8284	8328	8372	8416		
14	8461	8505	8549	8593	8638	8682	8726	8770	8815	8859		
15	8903	8947	8992	9036	9080	9124	9169	9213	9257	9301		
16	9345	9390	9434	9478	9522	9567	9611	9655	9699	9744		
17	9788	9832	9876	9921	9965	0009	0053	0098	0142	0186		
18	9920230	0275	0319	0363	0407	0451	0496	0540	0584	0628		
19	0673	0717	0761	0805	0850	0894	0938	0982	1026	1071		
9820	1115	1159	1203	1248	1292	1336	1380	1424	1469	1513		
21	1557	1601	1646	1690	1734	1778	1822	1867	1911	1955		
22	1999	2044	2088	2132	2176	2220	2265	2309	2353	2397		
23	2441	2486	2530	2574	2618	2662	2707	2751	2795	2839		
24	2884	2928	2972	3016	3060	3105	3149	3193	3237	3281		
25	3326	3370	3414	3458	3502	3547	3591	3635	3679	3723		
26	3768	3812	3856	3900	3944	3989	4033	4077	4121	4165		
27	4210	4254	4298	4342	4386	4431	4475	4519	4563	4607		
28	4651	4696	4740	4784	4828	4872	4917	4961	5005	5049		
29	5093	5138	5182	5226	5270	5314	5358	5403	5447	5491		
9830	5535	5579	5624	5668	5712	5756	5800	5844	5889	5933		
31	5977	6021	6065	6109	6154	6198	6242	6286	6330	6375		
32	6419	6463	6507	6551	6595	6640	6684	6728	6772	6816		
33	6860	6905	6949	6993	7037	7081	7125	7170	7214	7258		
34	7302	7346	7390	7435	7479	7523	7567	7611	7655	7699		
35	7744	7788	7832	7876	7920	7964	8009	8053	8097	8141		
36	8185	8229	8274	8318	8362	8406	8450	8494	8538	8583		
37	8627	8671	8715	8759	8803	8847	8892	8936	8980	9024		
38	9068	9112	9156	9201	9245	9289	9333	9377	9421	9465		
39	9510	9554	9598	9642	9686	9730	9774	9819	9863	9907		
9840	9951	9995	0039	0083	0128	0172	0216	0260	0304	0348		
41	9930392	0436	0481	0525	0569	0613	0657	0701	0745	0789		
42	0834	0878	0922	0966	1010	1054	1098	1142	1187	1231		
43	1275	1319	1363	1407	1451	1495	1540	1584	1628	1672		
44	1716	1760	1804	1848	1893	1937	1981	2025	2069	2113		
45	2157	2201	2245	2290	2334	2378	2422	2466	2510	2554		
46	2598	2642	2687	2731	2775	2819	2863	2907	2951	2995		
47	3039	3083	3128	3172	3216	3260	3304	3348	3392	3436		
48	3480	3524	3569	3613	3657	3701	3745	3789	3833	3877		
49	3921	3965	4010	4054	4098	4142	4186	4230	4274	4318		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

45

1	5
2	9
3	14
4	18
5	23
6	27
7	32
8	36
9	41

44

1	4
2	9
3	13
4	18
5	22
6	26
7	31
8	35
9	40

N	O	I	2	3	4	5	6	7	8	9	D	Pro
9850	9934362	4406	4450	4495	4539	4583	4627	4671	4715	4759		
51	4803	4847	4891	4935	4980	5024	5068	5112	5156	5200		
52	5244	5288	5332	5376	5420	5464	5509	5553	5597	5641		
53	5685	5729	5773	5817	5861	5905	5949	5993	6037	6082		
54	6126	6170	6214	6258	6302	6346	6390	6434	6478	6522		
55	6566	6610	6654	6698	6743	6787	6831	6875	6919	6963		
56	7007	7051	7095	7139	7183	7227	7271	7315	7359	7404		
57	7448	7492	7536	7580	7624	7668	7712	7756	7800	7844		
58	7888	7932	7976	8020	8064	8108	8152	8197	8241	8285		
59	8329	8373	8417	8461	8505	8549	8593	8637	8681	8725		
9860	8769	8813	8857	8901	8945	8989	9033	9077	9122	9166		
61	9210	9254	9298	9342	9386	9430	9474	9518	9562	9606	45	
62	9650	9694	9738	9782	9826	9870	9914	9958	0002	0046	1	4
63	9940090	0134	0178	0222	0266	0310	0355	0399	0443	0487	2	9
64	0531	0575	0619	0663	0707	0751	0795	0839	0883	0927	3	13
65	0971	1015	1059	1103	1147	1191	1235	1279	1323	1367	4	18
66	1411	1455	1499	1543	1587	1631	1675	1719	1763	1807	5	23
67	1851	1895	1939	1983	2027	2071	2115	2159	2203	2247	6	27
68	2291	2335	2379	2423	2467	2511	2555	2599	2643	2687	7	32
69	2731	2775	2820	2864	2908	2952	2996	3040	3084	3128	8	36
9870	3172	3216	3260	3304	3348	3392	3436	3480	3524	3568	9	41
71	3612	3656	3700	3744	3788	3831	3875	3919	3963	4007		
72	4051	4095	4139	4183	4227	4271	4315	4359	4403	4447		
73	4491	4535	4579	4623	4667	4711	4755	4799	4843	4887		
74	4931	4975	5019	5063	5107	5151	5195	5239	5283	5327		
75	5371	5415	5459	5503	5547	5591	5635	5679	5723	5767		
76	5811	5855	5899	5943	5987	6031	6075	6119	6163	6207		
77	6251	6295	6338	6382	6426	6470	6514	6558	6602	6646		
78	6690	6734	6778	6822	6866	6910	6954	6998	7042	7086		
79	7130	7174	7218	7262	7306	7350	7394	7438	7482	7525		
9880	7569	7613	7657	7701	7745	7789	7833	7877	7921	7965		
81	8009	8053	8097	8141	8185	8229	8273	8317	8361	8405	44	
82	8448	8492	8536	8580	8624	8668	8712	8756	8800	8844	1	4
83	8888	8932	8976	9020	9064	9108	9152	9196	9239	9283	2	9
84	9327	9371	9415	9459	9503	9547	9591	9635	9679	9723	3	13
85	9767	9811	9855	9899	9942	9986	0030	0074	0118	0162	4	18
86	9950206	0250	0294	0338	0382	0426	0470	0514	0557	0601	5	22
87	0645	0689	0733	0777	0821	0865	0909	0953	0997	1041	6	26
88	1085	1128	1172	1216	1260	1304	1348	1392	1436	1480	7	31
89	1524	1568	1612	1656	1699	1743	1787	1831	1875	1919	8	35
9890	1963	2007	2051	2095	2139	2182	2226	2270	2314	2358	9	40
91	2402	2446	2490	2534	2578	2622	2665	2709	2753	2797		
92	2841	2885	2929	2973	3017	3061	3104	3148	3192	3236		
93	3280	3324	3368	3412	3456	3500	3543	3587	3631	3675		
94	3719	3763	3807	3851	3895	3939	3982	4026	4070	4114		
95	4158	4202	4246	4290	4334	4377	4421	4465	4509	4553		
96	4597	4641	4685	4729	4772	4816	4860	4904	4948	4992		
97	5036	5080	5123	5167	5211	5255	5299	5343	5387	5431		
98	5474	5518	5562	5606	5650	5694	5738	5782	5825	5869		
99	5913	5957	6001	6045	6089	6133	6176	6220	6264	6308		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

N. 990 L. 995

OF NUMBERS.

(185)

N	O	I	2	3	4	5	6	7	8	9	D	Pro
9900	9956352	6396	6440	6484	6527	6571	6615	6659	6703	6747		
01	6791	6834	6878	6922	6966	7010	7054	7098	7142	7185		
02	7229	7273	7317	7361	7405	7449	7492	7536	7580	7624		
03	7668	7712	7755	7799	7843	7887	7931	7975	8019	8062		
04	8106	8150	8194	8238	8282	8326	8369	8413	8457	8501		
05	8545	8589	8632	8676	8720	8764	8808	8852	8896	8939		
06	8983	9027	9071	9115	9159	9202	9246	9290	9334	9378		
07	9422	9465	9509	9553	9597	9641	9685	9728	9772	9816		
08	9860	9904	9948	9991	0035	0079	0123	0167	0211	0254		
09	9960298	0342	0386	0430	0474	0517	0561	0605	0649	0693		
9910	0737	0780	0824	0868	0912	0956	0999	1043	1087	1131		
11	1175	1219	1262	1306	1350	1394	1438	1481	1525	1569		
12	1613	1657	1701	1744	1788	1832	1876	1920	1963	2007		
13	2051	2095	2139	2182	2226	2270	2314	2358	2402	2445		
14	2489	2533	2577	2621	2664	2708	2752	2796	2840	2883		
15	2927	2971	3015	3059	3102	3146	3190	3234	3278	3321		
16	3365	3409	3453	3497	3540	3584	3628	3672	3716	3759		
17	3803	3847	3891	3935	3978	4022	4066	4110	4153	4197		
18	4241	4285	4329	4372	4416	4460	4504	4548	4591	4635		
19	4679	4723	4766	4810	4854	4898	4942	4985	5029	5073		
9920	5117	5161	5204	5248	5292	5336	5379	5423	5467	5511		
21	5554	5598	5642	5686	5730	5773	5817	5861	5905	5948		
22	5992	6036	6080	6124	6167	6211	6255	6299	6342	6386		
23	6430	6474	6517	6561	6605	6649	6693	6736	6780	6824		
24	6868	6911	6955	6999	7043	7086	7130	7174	7218	7261		
25	7305	7349	7393	7436	7480	7524	7568	7611	7655	7699		
26	7743	7786	7830	7874	7918	7961	8005	8049	8093	8136		
27	8180	8224	8268	8311	8355	8399	8443	8486	8530	8574		
28	8618	8661	8705	8749	8793	8836	8880	8924	8968	9011		
29	9055	9099	9143	9186	9230	9274	9318	9361	9405	9449		
9930	9492	9536	9580	9624	9667	9711	9755	9799	9842	9886		
31	9930	9974	0017	0061	0105	0148	0192	0236	0280	0323		
32	9970367	0411	0455	0498	0542	0586	0629	0673	0717	0761		
33	0804	0848	0892	0936	0979	1023	1067	1110	1154	1198		
34	1242	1285	1329	1373	1416	1460	1504	1548	1591	1635		
35	1679	1722	1766	1810	1854	1897	1941	1985	2028	2072		
36	2116	2160	2203	2247	2291	2334	2378	2422	2465	2509		
37	2553	2597	2640	2684	2728	2771	2815	2859	2903	2946		
38	2990	3034	3077	3121	3165	3208	3252	3296	3340	3383		
39	3427	3471	3514	3558	3602	3645	3689	3733	3776	3820		
9940	3864	3908	3951	3995	4039	4082	4126	4170	4213	4257		
41	4301	4344	4388	4432	4475	4519	4563	4607	4650	4694		
42	4738	4781	4825	4869	4912	4956	5000	5043	5087	5131		
43	5174	5218	5262	5305	5349	5393	5436	5480	5524	5567		
44	5611	5655	5699	5742	5786	5830	5873	5917	5961	6004		
45	6048	6092	6135	6179	6223	6266	6310	6354	6397	6441		
46	6485	6528	6572	6616	6659	6703	6747	6790	6834	6878		
47	6921	6965	7009	7052	7096	7139	7183	7227	7270	7314		
48	7358	7401	7445	7489	7532	7576	7620	7663	7707	7751		
49	7794	7838	7882	7925	7969	8013	8056	8100	8144	8187		
N	O	I	2	3	4	5	6	7	8	9	D	Pts

44

1	4
2	9
3	13
4	18
5	22
6	26
7	31
8	35
9	40

43

1	4
2	9
3	13
4	17
5	21
6	26
7	30
8	34
9	39

(186)		LOGARITHMS										N. 995 L. 997	
N	0	1	2	3	4	5	6	7	8	9	D	Pro	
9950	9978231	8274	8318	8362	8405	8449	8493	8536	8580	8624			
51	8667	8711	8755	8798	8842	8885	8929	8973	9016	9060			
52	9104	9147	9191	9235	9278	9322	9365	9409	9453	9496			
53	9540	9584	9627	9671	9715	9758	9802	9845	9889	9933			
54	9976	0020	0064	0107	0151	0195	0238	0282	0325	0369			
55	9980413	0456	0500	0544	0587	0631	0674	0718	0762	0805			
56	0849	0893	0936	0980	1023	1067	1111	1154	1198	1241			
57	1285	1329	1372	1416	1460	1503	1547	1590	1634	1678			
58	1721	1765	1808	1852	1896	1939	1983	2026	2070	2114			
59	2157	2201	2245	2288	2332	2375	2419	2463	2506	2550			
9960	2593	2637	2681	2724	2768	2811	2855	2899	2942	2986			
61	3029	3073	3117	3160	3204	3247	3291	3335	3378	3422			
62	3465	3509	3553	3596	3640	3683	3727	3771	3814	3858			
63	3901	3945	3988	4032	4076	4119	4163	4206	4250	4294			
64	4337	4381	4424	4468	4512	4555	4599	4642	4686	4729			
65	4773	4817	4860	4904	4947	4991	5035	5078	5122	5165			
66	5209	5252	5296	5340	5383	5427	5470	5514	5557	5601			
67	5645	5688	5732	5775	5819	5862	5906	5950	5993	6037			
68	6080	6124	6167	6211	6255	6298	6342	6385	6429	6472			
69	6516	6560	6603	6647	6690	6734	6777	6821	6864	6908			
9970	6952	6995	7039	7082	7126	7169	7213	7256	7300	7344			
71	7387	7431	7474	7518	7561	7605	7648	7692	7736	7779			
72	7823	7866	7910	7953	7997	8040	8084	8128	8171	8215			
73	8258	8302	9345	8389	8432	8476	8519	8563	8607	8650			
74	8694	8737	8781	8824	8868	8911	8955	8998	9042	9086			
75	9129	9173	9216	9260	9303	9347	9390	9434	9477	9521			
76	9564	9608	9651	9695	9739	9782	9826	9869	9913	9956			
77	9990000	0043	0087	0130	0174	0217	0261	0304	0348	0391			
78	0435	0479	0522	0566	0609	0653	0696	0740	0783	0827			
79	0870	0914	0957	1001	1044	1088	1131	1175	1218	1262			
9980	1305	1349	1392	1436	1479	1523	1567	1610	1654	1697			
81	1741	1784	1828	1871	1915	1958	2002	2045	2089	2132			
82	2176	2219	2263	2306	2350	2393	2437	2480	2524	2567			
83	2611	2654	2698	2741	2785	2828	2872	2915	2959	3002			
84	3046	3089	3133	3176	3220	3263	3307	3350	3394	3437			
85	3481	3524	3568	3611	3655	3698	3742	3785	3829	3872			
86	3916	3959	4003	4046	4090	4133	4177	4220	4264	4307			
87	4350	4394	4437	4481	4524	4568	4611	4655	4698	4742			
88	4785	4829	4872	4916	4959	5003	5046	5090	5133	5177			
89	5220	5264	5307	5351	5394	5438	5481	5524	5568	5611			
9990	5655	5698	5742	5785	5829	5872	5916	5959	6003	6046			
91	6090	6133	6177	6220	6263	6307	6350	6394	6437	6481			
92	6524	6568	6611	6655	6698	6742	6785	6828	6872	6915			
93	6959	7002	7046	7089	7133	7176	7220	7263	7307	7350			
94	7393	7437	7480	7524	7567	7611	7654	7698	7741	7785			
95	7828	7871	7915	7958	8002	8045	8089	8132	8176	8219			
96	8262	8306	8349	8393	8436	8480	8523	8567	8610	8653			
97	8697	8740	8784	8827	8871	8914	8958	9001	9044	9088			
98	9131	9175	9218	9262	9305	9349	9392	9435	9479	9522			
99	9566	9609	9653	9696	9739	9783	9826	9870	9913	9957			
N	0	1	2	3	4	5	6	7	8	9	D	Pts	

44

1

2

3

4

5

6

7

8

9

4

9

13

18

21

26

31

35

40

43

1

2

3

4

5

6

7

8

9

4

9

13

17

22

26

30

34

39

44
1 4
2 9
3 13
4 18
5 22
6 26
7 31
8 35
9 40

43
1 4
2 9
3 13
4 17
5 22
6 26
7 30
8 34
9 38

T A B L E II.

(187)

For finding Logarithms and Numbers to 20 Places of Figures.

N	Logarithms	N	Logarithms
1	00000,00000,00000,00000	51	70757,01760,97936,36584
2	30102,99956,63981,19521	52	71600,33436,34799,15963
3	47712,12547,19662,43730	53	72427,58696,00789,04563
4	60205,99913,27962,39043	54	73239,37598,22968,50710
5	69897,00043,36018,80479	55	74036,26894,94243,84554
6	77815,12503,83643,63251	56	74818,80270,06200,41635
7	84509,80400,14256,83071	57	75587,48556,72491,39883
8	90308,99869,91943,58564	58	76342,79935,62937,28255
9	95424,25094,39324,87459	59	77085,20116,42144,19026
10	00000,00000,00000,00000	60	77815,12503,83643,63251
11	04139,26851,58225,04075	61	78532,98350,10767,03389
12	07918,12460,47624,82772	62	79239,16894,98253,87488
13	11394,33523,06836,76921	63	79934,05494,53581,70530
14	14612,80356,78238,02593	64	80617,99739,83887,17128
15	17609,12590,55681,24208	65	81291,33566,42855,57399
16	20411,99826,55924,78085	66	81954,39355,41868,67326
17	23044,89213,78273,92854	67	82607,48027,00826,43415
18	25527,25051,03306,06980	68	83250,89127,06236,31897
19	27875,36009,52828,96154	69	83884,90907,37255,31616
20	30102,99956,63981,19521	70	84509,80400,14256,83071
21	32221,92947,33919,26801	71	85125,83487,19075,28609
22	34242,26808,22206,23596	72	85733,24964,31268,46023
23	36172,78360,17592,87887	73	86332,28601,20455,90107
24	38021,12417,11600,02294	74	86923,17197,30976,19202
25	39794,00086,72037,60957	75	87506,12633,91700,04687
26	41497,33479,70817,96442	76	88081,35922,80791,35196
27	43136,37641,58987,31189	77	88649,07251,72481,87146
28	44715,80313,42219,22114	78	89209,46026,90480,40172
29	46239,79978,98956,08733	79	89762,70912,90441,42799
30	47712,12547,19662,43730	80	90308,99869,91943,58564
31	49136,16938,34272,67967	81	90848,50188,78649,74918
32	50514,99783,19905,97607	82	91381,38523,83716,68972
33	51851,39398,77887,47805	83	91907,80923,76073,90383
34	53147,89170,42255,12375	84	92427,92860,61881,65843
35	54406,80443,50275,63550	85	92941,89257,14292,73333
36	55630,25007,67287,26502	86	93449,84512,43567,72162
37	56820,17240,66994,99681	87	93951,92526,18618,52463
38	57978,35966,16810,15675	88	94448,26721,50168,62639
39	59106,46070,26499,20650	89	94939,00066,44912,78472
40	60205,99913,27962,39043	90	95424,25094,39324,87459
41	61278,38567,19735,49451	91	95904,13923,21093,59992
42	62324,92903,97900,46322	92	96378,78273,45555,26930
43	63346,84555,79586,52641	93	96848,29485,53935,11696
44	64345,26764,86187,43118	94	97312,78535,99698,65963
45	65321,25137,75343,67938	95	97772,36052,88847,76632
46	66275,78316,81574,07408	96	98227,12330,39568,41336
47	67209,78579,35717,46441	97	98677,17342,66244,85178
48	68124,12373,75587,21815	98	99122,60756,92494,85664
49	69019,60800,28513,66142	99	99563,51945,97549,91534
50	69897,00043,36018,80479	100	00000,00000,00000,00000

N	Logarithms
101	00432,13737,82642,57428
102	00860,01717,61917,56105
103	01283,72247,05172,20517
104	01703,33392,98780,35485
105	02118,92990,69938,07279
106	02530,58652,64770,24085
107	02938,37776,85209,64083
108	03342,37554,86949,70231
109	03742,64979,40623,63520
110	04139,26851,58225,04075
111	04532,29787,86657,43410
112	04921,80226,70181,61157
113	05307,84434,83419,72280
114	05690,48513,36472,59405
115	06069,78403,53611,68365
116	06445,79892,26918,47776
117	06818,58617,46161,64380
118	07188,20073,06125,38547
119	07554,69613,92530,75925
120	07918,12460,47624,82772
121	08278,53703,16450,08150
122	08635,98306,74748,22910
123	08990,51114,39397,93180
124	09342,16851,62235,07009
125	09691,00130,08056,41436
126	10037,05451,17562,90052
127	10380,37209,55956,86425
128	10720,99696,47868,36650
129	11058,97102,99248,96370
130	11394,33523,06836,76921
131	11727,12956,55764,26081
132	12057,39312,05849,86847
133	12385,16409,67085,79225
134	12710,47983,64807,62936
135	13033,37684,95006,11667
136	13353,89083,70217,51418
137	13672,05671,56406,76856
138	13987,90864,01236,51138
139	14301,48002,54095,08046
140	14612,80356,78238,02593
141	14921,91126,55379,90171
142	15228,83443,83056,48131
143	15533,60374,65061,80996
144	15836,24920,95249,65545
145	16136,80022,34974,89212
146	16435,28557,84437,09629
147	16731,73347,48176,09872
148	17026,17153,94957,38724
149	17318,62684,12274,03826
150	17609,12590,55681,24268

N	Logarithms
151	17897,69472,93169,43687
152	18184,35879,44772,54718
153	18469,14308,17598,80313
154	18752,07208,36463,06668
155	19033,16981,70291,48445
156	19312,45983,54461,59693
157	19589,96524,09233,73676
158	19865,70869,54422,62321
159	20139,71243,20451,48293
160	20411,99826,55924,78085
161	20682,58760,31849,70958
162	20951,50145,42630,94439
163	21218,76044,03957,80764
164	21484,38480,47697,88494
165	21748,39442,13906,28283
166	22010,80880,40055,09905
167	22271,64711,47583,27998
168	22530,92817,25862,85365
169	22788,67046,13673,53841
170	23044,89213,78273,92854
171	23299,61103,92153,83613
172	23552,84469,07548,91683
173	23804,61031,28795,41456
174	24054,92482,82599,71984
175	24303,80486,86294,44028
176	24551,26678,14149,82161
177	24797,32663,61806,62756
178	25042,00023,08893,97994
179	25285,30309,79893,16957
180	25527,25051,03306,06980
181	25767,85748,69184,51029
182	26007,13879,85074,79513
183	26245,10897,30429,47118
184	26481,78230,09536,46451
185	26717,17284,03013,80159
186	26951,29442,17916,31218
187	27184,16065,36498,96929
188	27415,78492,63679,85484
189	27646,18041,73244,14260
190	27875,36009,52828,96154
191	28103,33672,47727,53764
192	28330,12287,03549,60858
193	28555,73090,07773,76060
194	28780,17299,30226,04700
195	29003,46113,62518,01129
196	29225,60713,56476,05185
197	29446,62261,61592,92737
198	29666,51902,61531,11055
199	29885,30764,09706,65010
200	30102,99956,63981,19521

N	Logarithms	N	Logarithms
201	30319,60574,20488,87144	251	39967,37214,81038,13934
202	30535,13694,46623,76949	252	40140,05407,81544,09573
203	30749,60379,13212,91805	253	40312,05211,75817,91962
204	30963,01674,25898,75626	254	40483,37166,19938,05946
205	31175,38610,55754,29930	255	40654,01804,33955,17062
206	31386,72203,69153,40038	256	40823,99653,11849,56171
207	31597,03454,56917,75346	257	40993,31233,31294,53716
208	31806,33349,62761,55006	258	41161,97059,63230,15891
209	32014,62861,11054,00229	259	41329,97640,81251,82752
210	32221,92947,33919,26801	260	41497,33479,70817,96442
211	32428,24552,97692,66508	261	41664,05073,38280,96192
212	32633,58609,28751,43606	262	41830,12913,19745,45602
213	32837,96034,38737,72339	263	41995,57484,89757,86897
214	33041,37733,49190,83605	264	42160,39268,69831,06369
215	33243,84599,15605,33119	265	42324,58739,36807,85042
216	33445,37511,50930,89753	266	42488,16366,31066,98746
217	33645,97338,48529,51038	267	42651,12613,64575,22202
218	33845,64936,04604,83041	268	42813,47940,28788,82458
219	34044,41148,40118,33837	269	42975,22800,02407,98009
220	34242,26808,22206,23596	270	43136,37641,58987,31189
221	34439,22736,85110,69775	271	43296,92908,74405,72952
222	34635,29744,50638,62932	272	43456,89040,34198,70940
223	34830,48630,48160,67348	273	43616,26470,40756,03721
224	35024,80183,34162,80678	274	43775,05628,20387,96378
225	35218,25181,11362,48416	275	43933,26938,30262,65032
226	35410,84391,47400,91801	276	44090,90820,65217,70659
227	35602,58571,93122,72010	277	44247,97690,64448,55378
228	35793,48470,00453,78926	278	44404,47959,18076,27567
229	35983,54823,39887,99413	279	44560,42032,73597,55426
230	36172,78360,17592,87887	280	44715,80313,42219,22114
231	36361,19798,92144,30876	281	44870,63199,05079,89286
232	36548,79848,90899,67297	282	45024,91083,19361,09692
233	36735,59210,26018,97219	283	45178,64355,24290,23556
234	36921,58574,10142,83901	284	45331,83400,47037,67652
235	37106,78622,71736,26920	285	45484,48600,08510,20362
236	37291,20029,70106,58069	286	45636,60331,29043,00517
237	37474,83460,10103,86529	287	45788,18967,33992,32522
238	37657,69570,56511,95447	288	45939,24877,59230,85066
239	37839,79009,48137,68500	289	46089,78427,56547,85708
240	38021,12417,11606,02294	290	46239,79978,98956,08733
241	38201,70425,74868,38408	291	46389,29889,85907,28908
242	38381,53659,80431,27671	292	46538,28514,48418,29150
243	38560,62735,98312,18648	293	46686,76203,54109,45624
244	38738,98263,38729,42431	294	46834,73304,12157,29393
245	38916,60843,64532,46621	295	46982,20159,78162,99505
246	39093,51071,03379,12702	296	47129,17110,58938,58245
247	39269,69532,59665,73074	297	47275,64493,17212,35264
248	39445,16808,26216,26531	298	47421,62640,76255,23347
249	39619,93470,95736,34113	299	47567,11883,24429,64807
250	39794,00086,72037,60957	300	47712,12547,19662,43730

N	Logarithms	N	Logarithms
301	47856,64955,93843,35712	351	54530,71164,65824,08109
302	48000,69429,57150,63208	352	54654,26634,78131,01682
303	48144,26285,02305,01157	353	54777,47053,87822,56550
304	48287,35836,08753,74239	354	54900,32620,25787,82277
305	48429,98393,46785,83867	355	55022,83530,55094,09088
306	48572,14264,81579,99834	356	55144,99979,72875,17515
307	48713,83754,77186,48475	357	55266,82161,12193,19655
308	48855,07165,00444,26189	358	55388,30266,43874,36478
309	48995,84794,24834,64247	359	55509,44485,78319,14782
310	49136,16938,34272,67967	360	55630,25007,67287,26502
311	49276,03890,26837,50555	361	55750,72019,05657,92307
312	49415,45940,18442,79214	362	55870,85705,33165,70550
313	49554,43375,46448,48481	363	55990,66250,36112,51880
314	49692,96480,73214,93198	364	56110,13836,49055,99035
315	49831,05537,89600,51009	365	56229,28644,56474,70586
316	49968,70826,18403,81842	366	56348,10853,94410,66639
317	50105,92622,17751,49455	367	56466,60642,52089,33799
318	50242,71199,84432,67814	368	56584,78186,73517,65972
319	50379,06830,57181,12808	369	56702,63661,59060,36910
320	50514,99783,19905,97607	370	56820,17240,66994,99681
321	50650,50324,04872,07813	371	56937,39096,15045,87635
322	50785,58716,95830,90479	372	57054,29398,81897,50739
323	50920,25223,31102,89008	373	57170,88318,08687,60551
324	51054,50102,06612,13961	374	57287,16022,00480,16450
325	51188,33609,78874,37878	375	57403,12677,27718,85165
326	51321,76000,67939,00285	376	57518,78449,27661,05006
327	51454,77526,60286,07250	377	57634,13502,05792,85654
328	51587,38437,11679,08015	378	57749,17998,37225,33781
329	51719,58979,49974,29513	379	57863,92099,68072,34193
330	51851,39398,77887,47805	380	57978,35966,16810,15675
331	51982,79937,75718,73861	381	58092,49756,75619,30154
332	52113,80837,04036,29426	382	58206,33629,11708,73285
333	52244,42335,06319,87140	383	58319,87739,68622,74038
334	52374,64668,11564,47520	384	58433,12243,67530,80379
335	52504,48070,36845,23894	385	58546,07295,08500,67625
336	52633,92773,89844,04886	386	58658,73046,71754,95581
337	52762,99008,71338,62619	387	58771,09650,18911,40100
338	52891,67002,77654,73363	388	58883,17255,94207,24221
339	53019,96982,03082,16009	389	58994,96013,25707,73624
340	53147,89170,42255,12375	390	59106,46070,26499,20650
341	53275,43789,92497,72042	391	59217,67573,95866,80741
342	53402,61060,56135,03134	392	59328,60670,20457,24707
343	53529,41200,42770,49214	393	59439,25503,75426,69811
344	53655,84425,71530,11205	394	59549,62218,25574,12259
345	53781,90950,73274,12095	395	59659,70956,26460,23278
346	53907,60987,92776,60977	396	59769,51859,25512,30577
347	54032,94747,90873,71854	397	59879,05067,63115,06588
348	54157,92439,46580,91506	398	59988,30720,73687,84531
349	54282,54269,59179,89654	399	60097,28956,86748,22954
350	54406,80443,50275,63550	400	60205,99913,27962,39043

Tab. II. to 20 PLACES. (191)

N	Logarithms	N	Logarithms
401	60314,43726,20182,30654	451	65417,65418,77960,53526
402	60422,60530,84470,06666	452	65513,84348,11382,11322
403	60530,50461,41109,44887	453	65609,82020,12831,87416
404	60638,13651,10604,96470	454	65705,58528,57103,91532
405	60745,50232,14668,55397	455	65801,13966,57112,40470
406	60852,60335,77194,11326	456	65896,48426,64434,98447
407	60959,44092,25220,03756	457	65991,62000,69850,22235
408	61066,01630,89879,95148	458	66086,54780,03869,18934
409	61172,33080,07341,80361	459	66181,26855,37261,24043
410	61278,38567,19735,49451	460	66275,78316,81574,07408
411	61384,18218,76069,20586	461	66370,09253,89648,14507
412	61489,72160,33134,59560	462	66464,19755,56125,50397
413	61595,00516,56401,02097	463	66558,09910,17953,13567
414	61700,03411,20898,94867	464	66651,79805,54880,86819
415	61804,80967,12092,70862	465	66745,29528,89953,92175
416	61909,33306,26742,74528	466	66838,59166,90000,16740
417	62013,60549,73757,51775	467	66931,63805,66112,16309
418	62117,62817,75035,19750	468	67024,58530,74124,03422
419	62221,40229,66295,30985	469	67117,28427,15083,26486
420	62324,92903,97900,46322	470	67209,78579,35717,46441
421	62428,20958,35668,30744	471	67302,09071,28896,17406
422	62531,24509,61673,86030	472	67394,19986,34087,77590
423	62634,03673,75042,33900	473	67486,11407,37811,56716
424	62736,58565,92732,63127	474	67577,83416,74085,06050
425	62838,89300,50311,53811	475	67669,36096,24866,57111
426	62940,95991,02718,91860	476	67760,69527,20493,14968
427	63042,78750,25023,86460	477	67851,83790,40113,92022
428	63144,37690,13172,03126	478	67942,78966,12118,88022
429	63245,72921,84724,24725	479	68033,55134,14563,22010
430	63346,84555,79586,52641	480	68124,12373,75587,21815
431	63447,72701,60731,60075	481	68214,50763,73831,76601
432	63548,37468,14912,09274	482	68304,70382,38849,57929
433	63648,78963,53365,44270	483	68394,71307,51512,14688
434	63748,97295,12510,70559	484	68484,53616,44412,47193
435	63848,92569,54637,32941	485	68574,17386,02263,65657
436	63948,64892,68586,02563	486	68663,62692,62293,38169
437	64048,14369,70421,84040	487	68752,89612,14634,33246
438	64147,41105,04099,53358	488	68841,98220,02710,61952
439	64246,45202,42121,37063	489	68930,88591,23620,24494
440	64345,26764,86187,43118	490	69019,60800,28513,66142
441	64443,85894,67838,53601	491	69108,14921,22968,47275
442	64542,22693,49091,89296	492	69196,51027,67360,32223
443	64640,37262,23069,56023	493	69284,69192,77230,01587
444	64738,29701,14619,82453	494	69372,69489,23646,92596
445	64836,00109,80931,58951	495	69460,51989,33568,72013
446	64933,48587,12141,86869	496	69548,16764,90197,46052
447	65030,75231,31936,47555	497	69635,63887,33332,11681
448	65127,80139,98144,00199	498	69722,93427,59717,53634
449	65224,63410,03323,17492	499	69810,05456,23389,91417
450	65321,25137,75343,67938	500	69897,00043,36018,80479

N	Logarithms	N	Logarithms
501	69983,77258,67245,71728	551	74115,15988,51785,04887
502	70070,37171,45019,33455	552	74193,90777,29198,90180
503	70156,79850,55927,39710	553	74272,51313,04698,25871
504	70243,05364,45525,29094	554	74350,97647,28429,74899
505	70329,13781,18661,37906	555	74429,29831,22676,23880
506	70415,05168,39799,11483	556	74507,47915,82057,47088
507	70500,79593,33335,97571	557	74585,51951,73728,90044
508	70586,37122,83919,25467	558	74663,41989,37578,74947
509	70671,77823,36758,74657	559	74741,18078,86423,29561
510	70757,01760,97936,36584	560	74818,80270,06200,41635
511	70842,09001,34712,73179	561	74896,28612,56161,40659
512	70926,99609,75830,75692	562	74973,63155,69061,08808
513	71011,73651,11816,27342	563	75050,83948,51346,22909
514	71096,31189,95275,73238	564	75127,91039,83342,29214
515	71180,72290,41191,00996	565	75204,84478,19438,52758
516	71264,97016,27211,35413	566	75281,64311,88271,43077
517	71349,05430,93942,50516	567	75358,30588,92906,57989
518	71432,97597,45233,02273	568	75434,83357,11018,87173
519	71516,73578,48457,85186	569	75511,22663,95071,17229
520	71600,33436,34799,15963	570	75587,48556,72401,39883
521	71683,77232,99524,47424	571	75663,61082,45848,05004
522	71767,05030,02262,15714	572	75739,60287,93024,20038
523	71850,16888,67274,23926	573	75815,46219,67389,97493
524	71933,12869,83726,65124	574	75891,18923,97973,52044
525	72015,93034,05956,87758	575	75966,78446,89630,48844
526	72098,57441,53739,06419	576	76042,24834,23212,04587
527	72181,06152,12546,60821	577	76117,58131,55731,42849
528	72263,39225,33812,25890	578	76192,78384,20529,05229
529	72345,56720,35185,75774	579	76267,85637,27436,19789
530	72427,58696,00789,04563	580	76342,79935,62937,28254
531	72509,45210,81469,06485	581	76417,61323,90330,73454
532	72591,16322,95048,18268	582	76492,29846,49888,48429
533	72672,72090,26572,26372	583	76566,85547,59014,08638
534	72754,12570,28556,41723	584	76641,28471,12399,48673
535	72835,37820,21228,44562	585	76715,58660,82180,44858
536	72916,47896,92770,01979	586	76789,76160,18090,05146
537	72997,42856,99555,60687	587	76863,81012,47614,47606
538	73078,22756,66389,17530	588	76937,73260,76138,48915
539	73158,87651,86738,70217	589	77011,52947,87101,64120
540	73239,37598,22968,50710	590	77085,20116,42144,19026
541	73319,72651,06569,43688	591	77158,74808,81255,36467
542	73399,92865,38386,92473	592	77232,17067,22919,77766
543	73479,98295,88846,94758	593	77305,46933,64262,60640
544	73559,88996,98179,90461	594	77378,64449,81193,54785
545	73639,65022,76642,43999	595	77451,69657,28549,56404
546	73719,26427,04737,23243	596	77524,62597,40236,42868
547	73798,73263,33430,77381	597	77597,43311,29369,08740
548	73878,05584,84369,15899	598	77670,11839,88410,84329
549	73957,23444,50091,90848	599	77742,68223,89311,37983
550	74036,26894,94243,84554	600	77815,12503,83643,63251

N	Logarithms
601	77887,44720,02739,52089
602	77959,64912,57824,55233
603	78031,73121,40151,30874
604	78103,69386,21131,82730
605	78175,53746,52468,88629
606	78247,26241,66286,20678
607	78318,86910,75257,58096
608	78390,35792,72734,93761
609	78461,72926,32875,35534
610	78532,98350,10767,03389
611	78604,12102,42554,23362
612	78675,14221,45561,19356
613	78746,04745,18415,03774
614	78816,83711,41167,67997
615	78887,51157,75416,73659
616	78958,07121,64425,45710
617	79028,51640,33241,68205
618	79098,84750,88815,83768
619	79169,06490,20117,97680
620	79239,16894,98253,87488
621	79309,16001,76580,19075
622	79379,03846,90818,70077
623	79448,80466,50169,61544
624	79518,45856,82423,98736
625	79588,00173,44075,21915
626	79657,43332,10429,68002
627	79726,75408,30716,43958
628	79795,96437,37196,12719
629	79865,06454,45268,92535
630	79934,05494,53581,70530
631	80002,93592,44134,31302
632	80071,70782,82385,01364
633	80140,37100,17355,10238
634	80208,92578,81732,68977
635	80277,37252,91975,66903
636	80345,71156,48413,87336
637	80413,94323,35350,43063
638	80482,06787,21162,32330
639	80550,08581,58400,16068
640	80617,99739,83887,17128
641	80685,80295,18817,42225
642	80753,50280,68853,27334
643	80821,09729,24222,07249
644	80888,58673,59812,10001
645	80955,97146,35267,76849
646	81023,25179,95084,08529
647	81090,42806,68700,38446
648	81157,50058,70593,33482
649	81224,46968,00369,23101
650	81291,33566,42855,57399

N	Logarithms
651	81358,09885,68191,94767
652	81424,75957,31920,19807
653	81491,31812,75073,92143
654	81557,77483,24267,26771
655	81624,12999,91783,06560
656	81690,38393,75660,27536
657	81756,53695,59780,77566
658	81822,58936,13955,49034
659	81888,54145,94009,86128
660	81954,39355,41868,67326
661	82020,14594,85640,23665
662	82085,79894,39699,93382
663	82151,35284,04773,13504
664	82216,80793,68017,48947
665	82282,16453,03104,59703
666	82347,42291,70301,06661
667	82412,58339,16548,96620
668	82477,64624,75545,67041
669	82542,61177,67823,11077
670	82607,48027,00826,43415
671	82672,25201,68992,07464
672	82736,92730,53825,24408
673	82801,50642,23976,84648
674	82865,98965,35319,82140
675	82930,37728,31024,92146
676	82994,66959,41635,92884
677	83058,86686,85144,31601
678	83122,96938,67063,35530
679	83186,97742,80501,68250
680	83250,89127,06236,31897
681	83314,71119,12785,15740
682	83378,43746,56478,91563
683	83442,07036,81532,56340
684	83505,61017,20116,12655
685	83569,05714,92425,57335
686	83632,41157,06751,68735
687	83695,67370,59550,43142
688	83758,84382,35511,30726
689	83821,92219,07625,81484
690	83884,90907,37255,31616
691	83947,80473,74198,40758
692	84010,60944,56757,80499
693	84073,32346,11806,74605
694	84135,94704,54854,91375
695	84198,48045,90113,88524
696	84260,92396,10562,11027
697	84323,27780,98009,42305
698	84385,54226,23161,09175
699	84447,71757,45681,40948
700	84509,80400,14256,83071

N	Logarithms	N	Logarithms
701	84571,80179,66658,65706	751	87503,90370,04108,32175
702	84633,71121,29805,27631	752	87621,78405,91642,27147
703	84695,53250,19823,95834	753	87679,49762,00700,57164
704	84757,26591,42112,21203	754	87737,13458,69774,55175
705	84818,91169,91398,70650	755	87794,60516,29138,24166
706	84880,47010,51803,76071	756	87852,17955,01200,53302
707	84941,94137,96899,40499	757	87909,58795,00072,75700
708	85003,32576,89769,01798	758	87966,92056,32053,53715
709	85064,62351,83066,54285	759	88024,17758,95480,35091
710	85125,83487,19075,28609	760	88081,35922,80791,35190
711	85186,96007,29766,30258	761	88138,40567,70572,82637
712	85247,99936,36856,37036	762	88195,49713,39600,49675
713	85308,95298,51865,55853	763	88252,45379,54880,46591
714	85369,82117,76174,39176	764	88309,33585,75689,92806
715	85430,60418,01080,61474	765	88366,14351,53617,60792
716	85491,30223,07855,56000	766	88422,87696,32603,93559
717	85551,91556,67800,12230	767	88479,53639,48980,95947
718	85612,44442,42300,34303	768	88536,12200,31511,99900
719	85672,88903,82882,60777	769	88592,63398,01431,03960
720	85733,24964,31268,46023	770	88649,07251,72481,87146
721	85793,52647,19429,03588	771	88705,43780,50956,97446
722	85853,71975,69639,11829	772	88761,73003,35736,15102
723	85913,82972,94530,82137	773	88817,94939,18324,90897
724	85973,85661,97146,90071	774	88874,69606,82892,59621
725	86033,80065,70993,69691	775	88930,17025,55219,28924
726	86093,66207,00093,71401	776	88986,17212,58188,43743
727	86153,44108,59037,83621	777	89042,10188,00914,26482
728	86213,13793,13037,18556	778	89097,95969,89688,93146
729	86272,75283,17974,62377	779	89153,74576,72564,45605
730	86332,28601,20455,90107	780	89209,46026,90480,40172
731	86391,73769,57860,45495	781	89265,10338,77300,32684
732	86451,10810,58391,86161	782	89320,67530,59848,00262
733	86510,39746,41127,94317	783	89376,17620,57943,39922
734	86569,60599,16070,53320	784	89431,60626,84433,21228
735	86628,73390,84194,90351	785	89486,96567,45252,54155
736	86687,78143,37498,85494	786	89542,25460,39407,89132
737	86746,74878,59051,47490	787	89597,47323,59064,55847
738	86805,63618,23041,56431	788	89652,62174,89555,21760
739	86864,44383,94825,73669	789	89707,70032,09420,80627
740	86923,17197,30976,19202	790	89763,70012,90141,42799
741	86981,82079,79328,16804	791	89817,64834,97676,55351
742	87040,39052,79027,07156	792	89872,51815,89493,50098
743	87098,88137,60575,29242	793	89927,31873,17603,80309
744	87157,29355,45878,70260	794	89982,05024,27096,26109
745	87215,62727,48292,84304	795	90036,71286,56470,28771
746	87273,88274,72668,80072	796	90091,30677,37609,04053
747	87332,06018,15398,77842	797	90145,83213,96112,34727
748	87390,15978,64461,35972	798	90200,28913,50729,42476
749	87448,18176,99466,47155	799	90254,67793,13991,39295
750	87506,12633,91700,04687	800	90308,99869,91943,58564

N	Logarithms
800	90363,25160,84237,65931
801	90417,43682,84163,50176
802	90471,55452,78680,94182
803	90525,60487,48451,26187
804	90579,58803,67868,51437
805	90633,50418,05090,64409
806	90687,35347,22070,41738
807	90741,13607,74586,15992
808	90794,85216,12272,30432
809	90848,50188,78649,74918
810	90902,08542,11156,03069
811	90955,60292,41175,30847
812	91009,05455,94068,16682
813	91062,44048,89201,23277
814	91115,76087,39976,61243
815	91169,01587,53861,14669
816	91222,20565,32415,48794
817	91275,33036,71322,99882
818	91328,39017,60418,47451
819	91381,38523,83716,68972
820	91434,31571,19440,77180
821	91487,18175,40050,40107
822	91539,98352,52269,83977
823	91592,72116,97115,79081
824	91645,39485,49925,08762
825	91698,00473,20382,21619
826	91750,55095,52546,67071
827	91803,03367,84880,14389
828	91855,45305,50273,55312
829	91907,80923,76073,90383
830	91960,10237,84110,99107
831	92012,33262,90723,94049
832	92064,50014,06787,58996
833	92116,60506,37738,71297
834	92168,64754,83602,08477
835	92220,62774,39016,39271
836	92272,54579,93259,99155
837	92324,40186,30276,50506
838	92376,19608,28700,27500
839	92427,92860,61881,65843
840	92479,59957,97912,17467
841	92531,20914,99649,50266
842	92582,75746,24742,33016
843	92634,24466,25655,05551
844	92685,67089,49692,34320
845	92737,03630,39023,53422
846	92788,34103,30706,91221
847	92839,58522,56713,82649
848	92890,76902,43952,67285
849	92941,89257,14292,73333

N	Logarithms
851	92992,95600,84587,87568
852	93043,95947,66700,11382
853	93094,90311,67523,03000
854	93145,78706,89005,05981
855	93196,61147,28172,64091
856	93247,37646,77153,22648
857	93298,08219,23198,16429
858	93348,72878,48705,44247
859	93399,31638,31242,30263
860	93449,84512,43567,72162
861	93500,31514,53654,76252
862	93550,72658,24712,79596
863	93601,07957,15209,59266
864	93651,37424,78893,28795
865	93701,61074,64814,21935
866	93751,78920,17346,63791
867	93801,90974,76210,29438
868	93851,97251,76491,90081
869	93901,97764,48666,46875
870	93951,92526,18618,52463
871	94001,81550,07663,20336
872	94051,64849,32567,22084
873	94101,42437,05569,72637
874	94151,14326,34403,03562
875	94200,80530,22313,24507
876	94250,41061,68080,72880
877	94299,95933,66040,51823
878	94349,45159,06102,56585
879	94398,88750,73771,89354
880	94448,26721,50168,62639
881	94497,59084,12047,91274
882	94546,85851,31819,73123
883	94596,07035,77568,58562
884	94645,22650,13073,08817
885	94694,32706,97825,43234
886	94743,37218,87050,75544
887	94792,36198,31726,39220
888	94841,29657,78601,01974
889	94890,17609,70213,69496
890	94939,00066,44912,78472
891	94987,77040,36874,78993
892	95036,48543,76123,06390
893	95085,14588,88546,42595
894	95133,75187,95917,67077
895	95182,30353,15911,97436
896	95230,80096,62125,19721
897	95279,24430,44092,08537
898	95327,63366,67304,37013
899	95375,96917,33228,76700
900	95424,25094,39324,87459

N	Logarithms	N	Logarithms
901	95472,47909,79062,97417	951	97818,05109,37413,0915
902	95520,65375,41941,73047	952	97863,69483,84474,3451
903	95568,77503,13505,79441	953	97909,29006,38322,5711
904	95616,84304,75363,30844	954	97954,83747,04095,11544
905	95664,85792,05203,31508	955	98000,33715,83740,34242
906	95712,81976,76813,06938	956	98045,78922,76100,07543
907	95760,72870,60095,25585	957	98091,19377,70843,50537
908	95808,58485,21085,11053	958	98136,55090,78544,41531
909	95856,38832,21967,44887	959	98181,86071,70063,59920
910	95904,13923,21093,59992	960	98227,12330,39508,41336
911	95951,83769,72998,24763	961	98272,33876,68545,35013
912	95999,48383,28416,17969	962	98317,50720,37812,90127
913	96047,07775,34298,94458	963	98362,62871,24534,51542
914	96094,61957,33831,41757	964	98407,70339,02830,77450
915	96142,10940,66448,27597	965	98452,73133,43792,80538
916	96189,54736,67850,38456	966	98497,71264,15493,34202
917	96236,93356,70021,09152	967	98542,64740,83001,07360
918	96284,26812,01242,43564	968	98587,53573,08393,66714
919	96331,55113,86111,26520	969	98632,37770,50705,32737
920	96378,78273,45555,26930	970	98677,17342,06244,85178
921	96425,96301,96848,92205	971	98721,92299,08004,86280
922	96473,09210,53629,34029	972	98766,62649,26274,57607
923	96520,17010,25912,05530	973	98811,28402,68351,91117
924	96567,19712,20106,69918	974	98855,89558,78615,52768
925	96614,17327,39032,60638	975	98900,46156,98536,81607
926	96661,09866,81934,33089	976	98944,98176,66691,81474
927	96707,97341,44497,07976	977	98989,45037,18773,07091
928	96754,79762,18862,06340	978	99033,88547,87601,44015
929	96801,57139,93641,70318	979	99078,26918,03137,82547
930	96848,29485,53935,11696	980	99122,60756,92494,85664
931	96894,96809,81342,62296	981	99166,90073,79948,50970
932	96941,59123,53981,36262	982	99211,74877,80940,66797
933	96988,16437,46499,94285	983	99255,35118,32135,62475
934	97034,68762,30093,35830	984	99299,50984,53541,51745
935	97081,16108,72517,77408	985	99343,62304,97611,73216
936	97127,58487,38105,22944	986	99387,69149,41211,21109
937	97173,95908,87778,26303	987	99431,71526,69636,73242
938	97220,28383,79064,46008	988	99475,69445,87628,12117
939	97266,55922,66110,92210	989	99519,62915,97179,40527
940	97312,78535,99698,65963	990	99563,51945,97549,91534
941	97358,96234,27256,90834	991	99607,36514,85275,32836
942	97405,09027,92877,36927	992	99651,16721,54178,65523
943	97451,16927,37328,37338	993	99694,92484,95381,17590
944	97497,19942,98068,97112	994	99738,63843,97313,31202
945	97543,18085,09262,94738	995	99782,30807,45725,45489
946	97589,11364,01792,76237	996	99825,93384,23098,71150
947	97634,99790,03273,41875	997	99869,51583,11655,71908
948	97680,83373,38066,25572	998	99913,05412,87371,10938
949	97726,62124,27292,67028	999	99956,54882,25982,30860
950	97772,36052,88847,76632	1000	00043,40774,70318,64060

N	Logarithms	N	Logarithms
1000	00130,09330,20418,11880	1083	03462,84566,25320,36037
1001	00130,09330,20418,11880	1085	03542,97381,85148,31517
1002	00130,09330,20418,11880	1087	03622,95440,86294,53993
1003	00130,09330,20418,11880	1089	03702,78797,55774,95610
1004	00130,09330,20418,11880	1091	03782,47505,88341,87761
1005	00130,09330,20418,11880	1093	03862,01619,49702,79227
1006	00130,09330,20418,11880	1095	03941,41191,76137,14316
1007	00130,09330,20418,11880	1097	04020,66275,74711,13222
1008	00130,09330,20418,11880	1099	04099,76924,23490,56747
1009	00130,09330,20418,11880	1101	04178,73189,71751,77529
1010	00130,09330,20418,11880	1103	04257,55124,40190,59866
1011	00475,11555,91001,06349	1105	04336,22780,21729,50254
1012	00560,94453,60280,42845	1107	04414,76208,78722,80639
1013	00560,94453,60280,42845	1109	04493,15461,49160,06471
1014	00646,60422,49231,72283	1111	04571,40589,40867,61503
1015	00646,60422,49231,72283	1113	04649,51643,34708,31364
1016	00732,09529,22744,59739	1115	04727,48673,84779,47827
1017	00732,09529,22744,59739	1117	04805,31731,15609,05702
1018	00817,41840,06426,39490	1119	04883,00865,28350,04281
1019	00817,41840,06426,39490	1121	04960,56125,94973,15180
1020	00902,57420,86910,24725	1123	05037,97562,61457,78469
1021	00902,57420,86910,24725	1125	05115,25224,47981,28895
1022	00987,56337,12160,15771	1127	05192,39160,46106,54029
1023	01072,38653,91773,10408	1129	05269,39419,24967,86114
1024	01157,04435,97278,19720	1131	05346,26049,25455,29384
1025	01241,53747,62432,92943	1133	05422,99098,63397,24592
1026	01325,86652,83516,54691	1135	05499,58615,29741,52489
1027	01410,03215,19620,57904	1137	05576,04646,87734,77923
1028	01494,03497,92936,55824	1139	05652,37240,79100,36269
1029	01577,87563,89040,96243	1141	05728,56444,18214,63835
1030	01661,55475,57177,41240	1143	05804,62303,95281,73884
1031	01745,07295,10536,15583	1145	05880,54866,75906,79892
1032	01828,43084,26530,86897	1147	05956,34179,01267,67648
1033	01911,62904,47072,80707	1149	06032,00286,88285,17768
1034	01994,66816,78842,33384	1151	06107,53236,29791,80185
1035	02077,54881,93557,85991	1153	06182,93072,94699,02164
1036	02160,27160,28242,22008	1155	06258,19842,28163,11355
1037	02242,83711,85486,51839	1157	06333,33589,51749,55393
1038	02325,24596,33711,46987	1159	06408,34359,63595,99543
1039	02407,49873,07426,26758	1161	06483,22197,38573,83830
1040	02489,59601,07485,00279		
1041	02571,53839,01340,66612		
1042	02653,32645,23296,75697		
1043	02734,96077,74756,52817		
1044	02816,44194,24159,89253		
1045	02897,77052,08778,01749		
1046	02978,94608,31855,63385		
1047	03059,97219,65951,08414		
1048	03140,84642,51624,13598		
1049	03221,57032,97981,58511		
1050	03302,14446,82910,67304		
1051	03382,56939,53310,34328		

(198)

LOGARITHMS

Tab. 3.

Num.	Logarithms	Differ. 1	Diff. 2	D. 3
101000	00432,13737,82642,57428	42999,24078,66099	42572,87270	84291
101001	00432,56737,06721,23527	42998,81505,78753	42572,03045	84298
101002	00432,99735,88227,02280	42998,38933,75708	42571,18747	84295
101003	00433,42734,27160,77988	42997,96362,56961	42570,34452	84294
101004	00433,85732,23523,34949	42997,53792,22509	42569,50158	84290
101005	00434,28729,77315,57458	42997,11222,72351	42568,65868	84288
101006	00434,71726,88538,29809	42996,68654,06483	42567,81580	84286
101007	00435,14723,57192,36292	42996,26086,24903	42566,97294	84283
101008	00435,57719,83278,61195	42995,83519,27609	42566,13011	84281
101009	00436,00715,66797,88804	42995,40953,14598	42565,28730	84277
101010	00436,43711,07751,03402	42994,98387,85868	42564,44453	84277
101011	00436,86706,06138,89270	42994,55823,41415	42563,60176	84272
101012	00437,29700,61962,30685	42994,13259,81239	42562,75904	84271
101013	00437,72694,75222,11924	42993,70697,05335	42561,91633	84268
101014	00438,15688,45919,17259	42993,28135,13702	42561,07365	84266
101015	00438,58681,74054,30961	42992,85574,06337	42560,23099	84263
101016	00439,01674,59628,37298	42992,43013,83238	42559,3836	84260
101017	00439,44667,02642,20536	42992,00454,44402	42558,54576	84258
101018	00439,87659,03096,64938	42991,57895,89826	42557,70318	84257
101019	00440,30650,60992,54764	42991,15338,19508	42556,86061	84251
101020	00440,73641,76330,74272	42990,72781,33447	42556,01810	84252
101021	00441,16632,49112,07719	42990,30225,31637	42555,17552	84248
101022	00441,59622,79337,39356	42989,87670,12729	42554,33310	84245
101023	00442,02612,67007,53435	42989,45115,80769	42553,49065	84244
101024	00442,45602,12123,34204	42989,02562,31704	42552,64821	84239
101025	00442,88591,14685,65908	42988,60009,66883	42551,80582	84239
101026	00443,31579,74695,32791	42988,17457,86301	42550,96343	84236
101027	00443,74567,92153,19092	42987,74907,89958	42550,12107	84233
101028	00444,17555,67060,09050	42987,32356,77851	42549,27874	84230
101029	00444,60542,99416,50901	42986,89807,49977	42548,43644	84228
101030	00445,03529,89224,36878	42986,47259,06333	42547,59416	84225
101031	00445,46516,36483,43211	42986,04711,46917	42546,75191	84225
101032	00445,89502,41194,90128	42985,62164,71726	42545,90966	84219
101033	00446,32488,03359,61854	42985,19618,80760	42545,06747	84219
101034	00446,75473,22978,42614	42984,77073,74013	42544,22528	84214
101035	00447,18458,00052,16627	42984,34529,51485	42543,38314	84215
101036	00447,61442,34581,68112	42983,91986,13171	42542,54099	84209
101037	00448,04426,26567,81283	42983,49443,59072	42541,69890	84209
101038	00448,47409,76011,40355	42983,06901,89182	42540,85681	84205
101039	00448,90392,82913,29537	42982,64361,03501	42540,01476	84204
101040	00449,33375,47274,33038	42982,21821,02025	42539,17272	84199
101041	00449,76357,69095,35063	42981,79281,84753	42538,33073	84199
101042	00450,19339,48377,19816	42981,36743,51680	42537,48874	84196
101043	00450,62320,85120,71496	42980,94206,02806	42536,64678	84193
101044	00451,05301,79326,74302	42980,51669,38128	42535,80485	84189
101045	00451,48282,30996,12430	42980,09133,57643	42534,96296	84189
101046	00451,91262,40129,70073	42979,66598,61347	42534,12107	84187
101047	00452,34242,06728,31420	42979,24064,49240	42533,27920	84181
101048	00452,77221,30792,80660	42978,81531,21320	42532,43739	84181
101049	00453,20200,12324,01980	42978,38998,77581	42531,59558	84178

Num.	Logarithms	Diff. 1	Diff. 2	D. 3
101050	00453,63178,51322,79561	42977,96467,18023	42530,75380	84177
101051	00454,06156,47789,97584	42977,53936,42643	42529,91203	84172
101052	00454,49134,01726,40227	42977,11406,51440	42529,07031	84170
101053	00454,92111,13132,91667	42976,68877,44409	42528,22861	84168
101054	00455,35087,82010,36076	42976,26349,21548	42527,38693	84167
101055	00455,78064,08359,57624	42975,83821,82855	42526,54526	84162
101056	00456,21039,92181,40479	42975,41295,28329	42525,70364	84161
101057	00456,64015,33476,68808	42974,98769,57965	42524,86203	84158
101058	00457,06990,32246,26773	42974,56244,71762	42524,02045	84155
101059	00457,49964,88490,98535	42974,13720,69717	42523,17890	84154
101060	00457,92939,02211,68252	42973,71197,51827	42522,33736	84150
101061	00458,35912,73409,20079	42973,28675,18091	42521,49586	84148
101062	00458,78886,02084,38170	42972,86153,68505	42520,65438	84146
101063	00459,21858,88238,06675	42972,43633,03067	42519,81292	84143
101064	00459,64831,31871,09742	42972,01113,21775	42518,97149	84140
101065	00460,07803,32984,31517	42971,58594,24626	42518,13009	84138
101066	00460,50774,91578,56143	42971,16076,11617	42517,28871	84137
101067	00460,93746,07654,67760	42970,73558,82746	42516,44734	84132
101068	00461,36716,81213,50506	42970,31042,38012	42515,60602	84130
101069	00461,79687,12255,88518	42969,88526,77410	42514,76472	84130
101070	00462,22657,00782,65928	42969,46012,00938	42513,92342	84124
101071	00462,65626,46794,66866	42969,03498,08596	42513,08218	84123
101072	00463,08595,50292,75462	42968,60985,00378	42512,24095	84122
101073	00463,51564,11277,75840	42968,18472,76283	42511,39973	84117
101074	00463,94532,29750,52123	42967,75961,36310	42510,55856	84116
101075	00464,37500,05711,88433	42967,33450,80454	42509,71740	84113
101076	00464,80467,39162,68887	42966,90941,08714	42508,87627	84111
101077	00465,23434,30103,77601	42966,48432,21087	42508,03516	84107
101078	00465,66400,78535,98688	42966,05924,17571	42507,19409	84107
101079	00466,09366,84460,16250	42965,63416,92162	42506,35302	84102
101080	00466,52332,47877,14421	42965,20910,62860	42505,51200	84102
101081	00466,95297,68787,77281	42964,78405,11660	42504,67098	84097
101082	00467,38262,47192,38941	42964,35900,44562	42503,83001	84095
101083	00467,81226,83093,33503	42963,93396,61561	42502,98906	84095
101084	00468,24190,76489,95064	42963,50893,62655	42502,14811	84090
101085	00468,67154,27383,57719	42963,08391,47844	42501,30721	84087
101086	00469,10117,35775,05563	42962,65890,17123	42500,46634	84087
101087	00469,53080,01665,22686	42962,23389,70489	42499,62547	84083
101088	00469,96042,25054,93175	42961,80890,07942	42498,78464	84080
101089	00470,39004,05945,01117	42961,38391,29478	42497,94384	84078
101090	00470,81965,44336,30595	42960,95893,35094	42497,10306	84077
101091	00471,24926,40229,65689	42960,53396,24788	42496,26229	84073
101092	00471,67886,93625,90477	42960,10899,98559	42495,42156	84069
101093	00472,10847,04525,89036	42959,68404,56403	42494,58087	84070
101094	00472,53806,72930,45439	42959,25909,98316	42493,74017	84065
101095	00472,96765,98840,43755	42958,83416,24299	42492,89952	84063
101096	00473,39724,82256,68054	42958,40923,34347	42492,05889	84060
101097	00473,82683,23180,02401	42957,98431,28458	42491,21829	84061
101098	00474,25641,21611,30859	42957,55940,06629	42490,37768	84052
101099	00474,68598,77551,37488	42957,13449,68861	42489,53716	84056

Num.	Logarithms	Diff. 1	Diff. 2	D. 3
101100	00475,11555,91001,06349	42956,70960,15145	42488,69665,2450	84050
101101	00475,54512,61961,21494	42956,28471,45485	42487,85010,84048	84048
101102	00475,97468,90432,66979	42955,85983,59875	42487,01565,84040	84040
101103	00476,40424,76416,26854	42955,43496,58313	42486,17516,84043	84043
101104	00476,83380,19912,85167	42955,01010,40797	42485,33473,84040	84040
101105	00477,26335,20923,25964	42954,58525,07324	42484,49433,84040	84040
101106	00477,69289,79448,33288	42954,16040,57891	42483,65393,84034	84034
101107	00478,12243,95488,91179	42953,73556,92498	42482,81359,84035	84035
101108	00478,55197,69045,83677	42953,31074,11139	42481,97324,84030	84030
101109	00478,98151,00119,94816	42952,88592,13815	42481,13294,84028	84028
101110	00479,41103,88712,08631	42952,46111,00521	42480,29266,84025	84025
101111	00479,84056,34823,09152	42952,03630,71255	42479,45241,84026	84026
101112	00480,27008,38453,80407	42951,61151,26014	42478,61215,84018	84018
101113	00480,69959,99605,06421	42951,18672,64799	42477,77197,84020	84020
101114	00481,12911,18277,71220	42950,76194,87602	42476,93177,84015	84015
101115	00481,55861,94472,58822	42950,33717,94425	42476,09162,84013	84013
101116	00481,98812,28190,53247	42949,91241,85263	42475,25149,84012	84012
101117	00482,41762,19432,38510	42949,48766,60114	42474,41137,84008	84008
101118	00482,84711,68198,98624	42949,06292,18977	42473,57129,84006	84006
101119	00483,27660,74491,17601	42948,63818,61848	42472,73123,84002	84002
101120	00483,70609,38309,79449	42948,21345,88725	42471,89121,84003	84003
101121	00484,13557,59655,68174	42947,78873,99604	42471,05118,85090	85090
101122	00484,56505,38529,67778	42947,36402,54486	42470,21122,83998	83998
101123	00484,99452,74932,62264	42946,93932,73364	42469,37124,83993	83993
101124	00485,42399,68865,35628	42946,51463,36240	42468,53131,83990	83990
101125	00485,85346,20328,71868	42946,08994,83109	42467,69141,83988	83988
101126	00486,28292,29323,54977	42945,66527,13968	42466,85153,83988	83988
101127	00486,71237,95850,68945	42945,24060,28815	42466,01165,83982	83982
101128	00487,14183,19910,97760	42944,81594,27650	42465,17183,83981	83981
101129	00487,57128,01505,25416	42944,39129,10467	42464,33202,83978	83978
101130	00488,00072,40634,35877	42943,96664,77265	42463,49224,83978	83978
101131	00488,43016,37299,13142	42943,54201,28041	42462,65246,83971	83971
101132	00488,85959,91500,41183	42943,11738,62795	42461,81275,83972	83972
101133	00489,28903,03239,03978	42942,69276,81520	42460,97303,83969	83969
101134	00489,71845,72515,85498	42942,26815,84217	42460,13334,83965	83965
101135	00490,14787,99331,69715	42941,84355,70883	42459,29369,83964	83964
101136	00490,57729,83687,40598	42941,41896,41514	42458,45405,83962	83962
101137	00491,00671,25583,82112	42940,99437,96109	42457,61443,83957	83957
101138	00491,43612,25021,78221	42940,56980,34666	42456,77486,83956	83956
101139	00491,86552,82002,12887	42940,14523,57180	42455,93530,83954	83954

T A B L E IV.

Tab. 4. NUMBERS TO 20 PLACES. (201)				
Log.	Number	Differ. 1	Diff. 2	D. 3
00000	10000,00000,00000,00000	23026,11602,68807	53020,20192	1,2208-
00001	10000,23026,11602,68807	23026,64622,88999	53021,42279	1,22085
00002	10000,46052,76225,57806	23027,17644,31278	53022,64364	1,22093
00003	10000,69079,93869,89084	23027,70666,95642	53023,86457	1,22093
00004	10000,92107,64536,84726	23028,23690,82099	53025,08550	1,22094
00005	10001,15135,88227,66825	23028,76715,90649	53026,30644	1,22102
00006	10001,38164,64943,57474	23029,29742,21293	53027,52746	1,22100
00007	10001,61193,94685,78767	23029,82769,74039	53028,74846	1,22106
00008	10001,84223,77455,52806	23030,35798,48885	53029,96952	1,22104
00009	10002,07254,13254,01691	23030,88828,45837	53031,19056	1,22114
00010	10002,30285,02082,47528	23031,41859,64893	53032,41170	1,22112
00011	10002,53316,43942,12421	23031,94892,06063	53033,63282	1,22115
00012	10002,76348,38834,18484	23032,47925,69345	53034,85397	1,22120
00013	10002,99380,86759,87829	23033,00960,54742	53036,07517	1,22120
00014	10003,22413,87720,42571	23033,53996,62259	53037,29637	1,22125
00015	10003,45447,41717,04830	23034,07033,91896	53038,51762	1,22128
00016	10003,68481,48750,96726	23034,60072,43658	53039,73890	1,22128
00017	10003,91516,08823,40384	23035,13112,17548	53040,96018	1,22134
00018	10004,14551,21935,57932	23035,66153,13566	53042,18152	1,22136
00019	10004,37586,88088,71498	23036,19195,31718	53043,40288	1,22137
00020	10004,60623,07284,03216	23036,72238,72006	53044,62425	1,22142
00021	10004,83659,79522,75222	23037,25283,34431	53045,84567	1,22144
00022	10005,06697,04806,09653	23037,78329,18998	53047,06711	1,22146
00023	10005,29734,83135,28651	23038,31376,25709	53048,28857	1,22151
00024	10005,52773,14511,54360	23038,84424,54566	53049,51008	1,22151
00025	10005,75811,98936,08926	23039,37474,05574	53050,73159	1,22156
00026	10005,98851,36410,14500	23039,90524,78733	53051,95315	1,22158
00027	10006,21891,26934,93233	23040,43576,74048	53053,17473	1,22161
00028	10006,44931,70511,67281	23040,96629,91521	53054,39634	1,22163
00029	10006,67972,67141,58802	23041,49684,31155	53055,61797	1,22167
00030	10006,91014,16825,89957	23042,02739,92952	53056,83964	1,22170
00031	10007,14056,19565,82909	23042,55796,76916	53058,06134	1,22170
00032	10007,37098,75362,59825	23043,08854,83050	53059,28304	1,22177
00033	10007,60141,84217,42875	23043,61914,11354	53060,50481	1,22177
00034	10007,83185,46131,54229	23044,14974,61835	53061,72658	1,22180
00035	10008,06229,61106,16064	23044,68036,34493	53062,94838	1,22185
00036	10008,29274,29142,50557	23045,21099,29331	53064,17023	1,22184
00037	10008,52319,50241,79888	23045,74163,46354	53065,39207	1,22190
00038	10008,75365,24405,26242	23046,27228,85561	53066,61397	1,22192
00039	10008,98411,51634,11803	23046,80295,46958	53067,83589	1,22195
00040	10009,21458,31929,58761	23047,33363,30547	53069,05784	1,22196
00041	10009,44505,65292,89308	23047,86432,36331	53070,27980	1,22202
00042	10009,67553,51725,25639	23048,39502,64311	53071,50182	1,22202
00043	10009,90601,91227,89950	23048,92574,14493	53072,72384	1,22206
00044	10010,13650,83802,04443	23049,45646,86877	53073,94590	1,22208
00045	10010,36700,29448,91320	23049,98720,81467	53075,16798	1,22213
00046	10010,59750,28169,72787	23050,51795,98265	53076,39011	1,22213
00047	10010,82800,79965,71052	23051,04872,37276	53077,61224	1,22218
00048	10011,05851,84838,08328	23051,57949,98500	53078,83442	1,22219
00049	10011,28903,42788,06828	23052,11028,81942	53080,05661	1,22224

Log.	Number	Differ. 1	Diff. 2	D. 3
00050	10011,51955,53816,88770	23052,64108,87603	53081,27885	1,22225
00051	10011,75008,17925,76373	23053,17190,15488	53082,50110	1,22227
00052	10011,98061,35115,91861	23053,70272,65598	53083,72338	1,22230
00053	10012,21115,05388,57459	23054,23356,37936	53084,94570	1,22233
00054	10012,44169,28744,95395	23054,76441,32506	53086,16803	1,22237
00055	10012,67224,05186,27901	23055,29527,49309	53087,39041	1,22238
00056	10012,90279,34713,77210	23055,82614,88350	53088,61279	1,22241
00057	10013,13335,17328,65560	23056,35703,49629	53089,83523	1,22245
00058	10013,36391,53032,15189	23056,88793,33152	53091,05708	1,22247
00059	10013,59448,41825,48341	23057,41884,38920	53092,28015	1,22252
00060	10013,82505,83709,87261	23057,94976,66935	53093,50207	1,22254
00061	10014,05563,78686,54196	23058,48070,17202	53094,72521	1,22255
00062	10014,28622,26756,71398	23059,01164,89723	53095,94776	1,22261
00063	10014,51681,27921,61121	23059,54260,84499	53097,17037	1,22262
00064	10014,74740,82182,45620	23060,07358,01530	53098,39299	1,22263
00065	10014,97800,89540,47156	23060,60456,40835	53099,61562	1,22270
00066	10015,20861,49996,87991	23061,13556,02397	53100,83832	1,22270
00067	10015,43922,63552,90388	23061,66656,86220	53102,06102	1,22273
00068	10015,66984,30209,76617	23062,19758,92331	53103,28375	1,22276
00069	10015,90046,49968,68948	23062,72862,20706	53104,50651	1,22280
00070	10016,13109,22830,89654	23063,25966,71357	53105,72931	1,22282
00071	10016,36172,48797,61011	23063,79072,44288	53106,95213	1,22284
00072	10016,59236,27870,05299	23064,32179,39501	53108,17497	1,22287
00073	10016,82300,60049,44800	23064,85287,56998	53109,39784	1,22290
00074	10017,05365,45337,01798	23065,38396,96782	53110,62074	1,22295
00075	10017,28430,83733,98580	23065,91507,58856	53111,84309	1,22295
00076	10017,51496,75241,57436	23066,44619,43225	53113,06604	1,22299
00077	10017,74563,19861,00661	23066,97732,49889	53114,28963	1,22301
00078	10017,97630,17593,50550	23067,50846,78852	53115,51264	1,22305
00079	10018,20697,68440,29402	23068,03962,30116	53116,73569	1,22306
00080	10018,43765,72402,59518	23068,57079,03685	53117,95875	1,22312
00081	10018,66834,29481,63203	23069,10196,99560	53119,18187	1,22312
00082	10018,89903,39678,62763	23069,63316,17747	53120,40499	1,22315
00083	10019,12973,02994,80510	23070,16436,58246	53121,62814	1,22318
00084	10019,36043,19431,38756	23070,69558,21060	53122,85132	1,22324
00085	10019,59113,88989,59816	23071,22681,06192	53124,07456	1,22321
00086	10019,82185,11670,66008	23071,75805,13648	53125,29777	1,22329
00087	10020,05256,87475,79656	23072,28930,43425	53126,52106	1,22329
00088	10020,28329,16406,23081	23072,82056,95531	53127,74435	1,22332
00089	10020,51401,98463,18612	23073,35184,69966	53128,96767	1,22336
00090	10020,74475,33647,88578	23073,88313,66733	53130,19103	1,22339
00091	10020,97549,21961,55311	23074,41443,85836	53131,41442	1,22339
00092	10021,20623,63405,41147	23074,94575,27278	53132,63781	1,22346
00093	10021,43698,57980,68425	23075,47707,91059	53133,86127	1,22345
00094	10021,66774,05688,59484	23076,00841,77186	53135,08472	1,22351
00095	10021,89850,06530,36670	23076,53976,85658	53136,30823	1,22350
00096	10022,12926,60507,22328	23077,07113,16481	53137,53173	1,22358
00097	10022,36003,67620,38809	23077,60250,69654	53138,75531	1,22354
00098	10022,59081,27871,08463	23078,13389,45185	53139,97886	1,22360
00099	10022,82159,41260,53648	23078,66529,43071	53141,20249	1,22360

Tab. 4

NUMBERS to 20 PLACES.

(203)

Log.	Number	Differ. 1	Diff. 2	D. 3
00100	10023,05238,07789,96719	23079,19670,63320	53142,42611	1,22396
00101	10023,28317,27460,60039	23079,72813,05931	53143,64979	1,22397
00102	10023,51397,00273,65970	23080,25956,70910	53144,87346	1,22397
00103	10023,74477,26230,36880	23080,79101,58231	53146,09720	1,22397
00104	10023,97558,05331,95136	23081,32247,67970	53147,32094	1,22398
00105	10024,20639,37579,63112	23081,85395,00070	53148,54472	1,22398
00106	10024,43721,22974,63182	23082,38543,54542	53149,76852	1,22398
00107	10024,66803,61518,17724	23082,91693,31394	53150,99235	1,22398
00108	10024,89886,53211,49118	23083,44844,30629	53152,21621	1,22399
00109	10025,12969,98055,79747	23083,97996,52250	53153,44011	1,22399
00110	10025,36053,96052,31997	23084,51149,96261	53154,66403	1,22399
00111	10025,59138,47202,28258	23085,04304,62664	53155,88796	1,22399
00112	10025,82223,51506,90922	23085,57460,51460	53157,11194	1,22400
00113	10026,05309,08967,42382	23086,10617,62654	53158,33594	1,22400
00114	10026,28395,19585,05036	23086,63775,96248	53159,55997	1,22400
00115	10026,51481,83361,01284	23087,16935,52245	53160,78404	1,22400
00116	10026,74569,00296,53529	23087,70096,30649	53162,00811	1,22401
00117	10026,97656,70392,84178	23088,23258,31460	53163,23223	1,22401
00118	10027,20744,93651,15638	23088,76421,54683	53164,45638	1,22401
00119	10027,43833,70072,70321	23089,29586,00321	53165,68054	1,22401
00120	10027,66922,99658,70642	23089,82751,68375	53166,90475	1,22402
00121	10027,90012,82410,39017	23090,35918,58850	53168,12897	1,22402
00122	10028,13103,18328,97867	23090,89086,71747	53169,35322	1,22402
00123	10028,36194,07415,69614	23091,42256,07069	53170,57752	1,22403
00124	10028,59285,49671,76683	23091,95426,64821	53171,80181	1,22403
00125	10028,82377,45098,41504	23092,48598,45003	53173,02610	1,22403
00126	10029,05469,93696,86507	23093,01771,47619	53174,25054	1,22403
00127	10029,28562,95468,34126	23093,54945,72673	53175,47492	1,22403
00128	10029,51656,50414,06799	23094,08121,20165	53176,69935	1,22404
00129	10029,74750,58535,26964	23094,61297,90100	53177,92381	1,22404
00130	10029,97845,19833,17064	23095,14475,82481	53179,14829	1,22404
00131	10030,20940,34308,99545	23095,67654,97310	53180,37279	1,22404
00132	10030,44036,01963,96855	23096,20835,34589	53181,59733	1,22404
00133	10030,67132,22799,31444	23096,74016,94322	53182,82190	1,22404
00134	10030,90228,96816,25766	23097,27199,76512	53184,04649	1,22404
00135	10031,13326,24016,02278	23097,80383,81101	53185,27112	1,22404
00136	10031,36424,04399,83439	23098,33569,08273	53186,49576	1,22404
00137	10031,59522,37968,91712	23098,86755,57849	53187,72045	1,22404
00138	10031,82621,24724,49561	23099,39943,29894	53188,94514	1,22404
00139	10032,05720,64667,79455	23099,93132,24408	53190,16989	1,22404

T A B L E V.

BRIGGS's Logarithms of all Numbers to 100, and of Primes under 1100,
to Sixty-one Places.

[illegible]

N	Tab. 5	LOGARITHMS TO 61 PLACES.	(205)	N
61	1.78532,98350,10707,03388,57485,13757,32134,92033,78757,11340,42120,703489			61
62	1.79239,16894,98253,87438,04429,94842,90874,90718,91439,76629,31972,487773			62
63	1.79934,05494,53581,70530,22720,65102,86681,18838,30124,70535,71361,633662			63
64	1.80617,99739,83887,17128,24333,68346,95816,06091,39288,77265,12478,625642			64
65	1.81291,33566,42855,57399,27662,63217,83540,40615,39306,92495,97304,907635			65
66	1.81954,39355,41868,67325,89667,69222,63257,76750,20936,11925,75007,368321			66
67	1.82607,48027,00826,43414,91316,29226,06858,09496,26080,56861,38691,179160			67
68	1.83250,89127,06236,31896,76476,83777,32308,35439,47141,34926,34800,012234			68
69	1.83884,90907,37255,31616,28050,15506,30485,88976,39898,52679,20531,054711			69
70	1.84509,80400,14256,83071,22162,58592,63619,34835,72396,32396,54065,036350			70
71	1.85125,83487,19075,28609,28294,35035,42913,52704,19901,60039,19762,706499			71
72	1.85733,24964,31268,46023,12724,90683,70969,87048,27372,76771,73535,910137			72
73	1.86332,28601,20455,90107,43869,00470,30853,44528,68255,31165,74851,100020			73
74	1.86923,17197,30976,19202,21895,84263,62247,47511,62571,62842,10879,281074			74
75	1.87506,12633,91700,04686,75501,13806,12925,56637,49101,26647,87822,000107			75
76	1.88081,35922,80791,35196,38112,65205,91537,14875,09100,31871,40815,270732			76
77	1.88649,07251,72481,87146,24162,29835,66043,51902,74586,79041,85011,001740			77
78	1.89209,46026,90480,40171,52719,55921,93676,67980,47934,03987,26779,414841			78
79	1.89762,70912,90441,42799,48213,86478,24968,64828,62019,02515,03156,163513			79
80	1.90308,99869,91943,58564,12166,84173,47908,03045,69644,38632,56239,312824			80
81	1.90848,50188,78649,74918,01116,13020,46123,68005,15456,76278,34593,194626			81
82	1.91381,38523,83716,68972,31507,44692,67382,62987,03515,29579,56303,177842			82
83	1.91907,80923,76073,90383,27603,52027,26124,70016,37658,08063,04535,293708			83
84	1.92427,92860,61881,65843,47219,51296,73755,62200,81023,43887,83539,543555			84
85	1.92941,89257,14292,73332,64309,99603,84100,32393,77496,96293,78560,699410			85
86	1.93449,84512,43507,72161,85270,47953,71518,55769,64705,84220,19558,351768			86
87	1.93951,92526,18618,52462,78746,66224,37030,04544,23282,07784,97058,952625			87
88	1.94448,26721,50168,62639,14166,55416,50332,20112,71834,85277,87185,278214			88
89	1.94939,00066,44912,78472,35433,69702,44112,46651,61858,10024,45836,328694			89
90	1.95424,25094,39324,87459,00558,06510,23061,84002,57728,38139,17206,597313			90
91	1.95904,13923,21093,59991,87214,16534,96402,43133,01584,71103,36783,043259			91
92	1.96378,78273,45555,26929,52549,01700,17560,32338,90797,26031,32708,964604			92
93	1.96848,29485,53935,11696,17320,03373,53103,15038,30422,49488,05207,682155			93
94	1.97312,78535,99698,65962,79582,94173,69366,69279,92979,89205,63683,477569			94
95	1.97772,36052,88847,76632,25045,81032,43620,11829,39455,93238,90575,963014			95
96	1.98227,12330,39508,41330,37223,70877,58044,30410,78271,50123,85713,820022			96
97	1.98677,17342,66244,85178,43618,11665,57744,94258,41584,63886,69747,182707			97
98	1.99122,60756,92494,85663,81714,11909,76541,37353,34674,11003,93543,176974			98
99	1.99563,51945,97549,91534,02557,77753,25486,01069,59918,84784,48242,562703			99
101	2.00432,13737,82642,57427,51881,78222,93791,32192,89355,20645,25914,058186			101
103	2.01283,72247,05172,40517,10711,94580,23942,43905,23496,97603,05647,528079			103
107	2.02938,37776,85209,64083,45412,39461,43564,61268,16891,63401,93519,816620			107
109	2.03742,64979,40623,63520,05133,07613,87528,66422,04522,82798,36821,104005			109
113	2.05307,84434,83419,72279,52270,28609,44818,47783,83623,62209,73395,157054			113
127	2.10380,37209,55956,86424,69874,21827,28625,85765,63239,79239,38677,687822			127
131	2.11727,12956,55764,26081,00542,70697,73859,47801,63117,12162,69689,770335			131
137	2.13672,05671,56406,76856,29266,27114,78973,36782,29707,46423,50456,632444			137
139	2.14301,48002,54095,08045,64332,02319,84731,44797,32967,91785,93396,574308			139
149	2.17318,62684,12274,03825,73635,42628,33705,39346,71326,37222,11012,048653			149
151	2.17897,69472,93169,42686,90730,55337,30273,84460,93428,77687,74510,971401			151
157	2.19589,96524,09233,73676,14311,29897,28370,50651,90992,78552,95873,594477			157
163	2.21218,76044,03957,80764,00914,35925,99475,49930,97247,35985,06185,303704			163
167	2.22271,64711,47583,27998,40759,09920,46753,44613,38401,33125,82289,069635			167
173	2.23804,61031,28795,41456,05302,58758,46538,77816,83269,13492,66453,988743			173
179	2.25285,30309,79893,16957,03826,91773,05861,94310,72090,67852,86239,477285			179
181	2.25767,85748,69284,51028,97436,76412,29249,22479,59232,72291,88769,574799			181
191	2.28103,35472,47727,53763,50435,98270,61031,84957,36134,17824,30405,891262			191
193	2.28555,73090,07773,76059,72386,46353,31082,10979,21601,94604,88412,889733			193
197	2.29446,62261,61592,92737,17443,17717,15501,75120,64672,00453,36906,180720			197
199	2.29885,30764,09706,65010,00217,84419,80284,14948,88771,49827,32431,907065			199
211	2.32428,24552,97692,66508,15581,29927,88565,15502,58502,90193,86869,014730			211
223	2.34830,48630,48160,67347,51762,16240,35284,44534,24237,98021,08177,231582			223
227	2.35602,58571,93122,72010,30489,64753,67294,74838,78261,56058,48416,494656			227
229	2.35983,54823,39887,99412,79298,65526,65887,03358,93242,54328,14002,593934			229
233	2.36735,59210,26018,97218,91388,35476,85936,08884,54098,32289,45750,381402			233
239	2.37839,79009,48137,68500,16611,60147,89212,27092,22421,69429,85262,599734			239

N	(206)	LOGARITHMS	Tab. 5	N
241	2.38201,70425,74868,38407,68839,66454,63294,43845,75422,87941,37116,09078			241
251	2.39967,37214,81038,13934,05493,16706,90408,18574,66685,39315,23086,55797			251
257	2.40993,31233,31294,53716,28954,65919,63183,09299,89891,62261,22190,65708			257
263	2.41995,57484,89757,86897,22335,83870,11811,42207,55733,87652,55581,84763			263
269	2.42975,22800,02407,98008,72285,15871,27175,37709,54680,10337,16358,20249			269
271	2.43296,92908,74405,72952,11801,94875,18026,90280,28099,71147,47190,95900			271
277	2.44247,97690,64448,55377,77563,19599,75831,09223,84739,72572,00838,27554			277
281	2.44870,63199,05079,89286,39179,16275,08871,55000,84994,87733,11091,22552			281
283	2.45178,64355,24290,23555,89519,10570,23772,98828,25398,13326,05411,83468			283
293	2.46686,76203,54109,45624,37585,12602,18133,14970,80293,87633,91801,38729			293
307	2.48713,83754,77186,48475,46084,36530,33504,93281,89317,26063,11352,56795			307
311	2.49276,03890,26837,50555,30231,83253,64155,85949,18519,90441,42367,78232			311
313	2.49554,43375,46448,48480,81265,04861,24315,15792,98693,98571,52993,19681			313
317	2.50105,92622,17751,49455,32290,16378,22488,04877,22158,71549,07278,11197			317
331	2.51982,79937,75718,73860,81406,07340,85663,50827,13549,69614,46087,29551			331
337	2.52702,99008,71338,02619,00147,90194,51019,87041,58106,86338,94145,59077			337
347	2.54032,94747,90873,71853,53573,03200,97397,86865,56176,91243,65052,25036			347
349	2.54282,54269,59179,89654,01719,77159,63066,31783,00866,75487,04181,99029			349
353	2.54777,47053,87822,56549,70693,15968,56119,79362,71500,87293,47356,17176			353
359	2.55509,44485,78319,14781,65293,94413,89970,02357,64461,12862,45018,19484			359
367	2.56466,60642,52089,33798,75290,93006,90914,75947,52157,57773,73388,52910			367
373	2.57170,88318,08687,60550,68969,38701,43991,49308,33032,45651,82236,82847			373
379	2.57863,92099,68072,34193,14620,59454,44405,29413,87210,96923,21381,08125			379
383	2.58319,87739,68622,74037,90461,29502,11234,47857,39787,51936,81090,65834			383
389	2.58994,96013,25707,73624,49469,11731,95270,14076,41221,24688,95645,06438			389
397	2.59879,05067,63115,06587,68482,40668,63112,25522,37562,91876,18078,50838			397
401	2.60314,43726,20182,30654,46411,48149,42549,75189,88963,37359,82761,56201			401
409	2.61172,33080,07341,80360,95027,17736,46679,00320,51595,65255,67279,40705			409
415	2.62221,40229,66295,30985,07395,99373,73621,25514,08166,99180,26223,81475			415
421	2.62428,20958,35668,30744,40669,23421,44371,09437,88488,01681,56998,05829			421
431	2.63447,72701,60731,60075,02803,26184,67878,49873,63233,16232,39160,16842			431
433	2.63648,78963,53365,44269,80664,49685,26766,08604,17833,53839,54652,63720			433
439	2.64246,45202,42121,37063,37411,50613,31363,46233,64482,93197,78492,69849			439
443	2.64640,37262,23069,56023,01044,89684,53902,83230,69450,39547,31960,21887			443
449	2.65224,63410,03323,17491,90263,53743,43105,35027,59942,01108,72112,40938			449
457	2.65991,62000,69850,22235,35461,45220,47714,05940,10155,52489,85020,58788			457
461	2.66370,09253,89648,14507,46818,18487,42133,71937,47244,04839,02463,62277			461
463	2.66558,09910,17953,13567,41931,08438,70855,40157,65450,46974,53874,83809			463
467	2.66931,68805,66112,16308,80510,89779,99674,10010,61401,55968,77553,65422			467
479	2.68033,55134,14563,22000,69639,66962,31078,27266,76340,01805,94696,67682			479
487	2.68752,89612,14634,33246,32050,64435,75372,38433,54413,59009,69000,27288			487
491	2.69108,14921,22968,47275,36909,83546,39435,54324,95219,43164,65484,93506			491
499	2.69810,05456,23389,91416,59050,36033,38846,73162,68889,76585,04407,21686			499
503	2.70156,77850,55927,39709,82240,90279,52805,50061,79311,53264,13100,62698			503
509	2.70671,77823,36758,74656,80767,11564,25501,75116,31022,82795,59327,73250			509
521	2.71683,77232,99524,47423,63411,86589,82340,55592,48804,35659,10389,03751			521
523	2.71850,16888,67274,23926,01265,78891,07882,05229,27624,54022,80340,61854			523
541	2.73319,72651,06569,43687,93482,43895,35766,02744,51126,54918,07249,95843			541
547	2.73798,73263,33430,77381,26473,72542,06411,41123,32573,38734,83672,54429			547
557	2.74585,51951,73728,90044,34334,98899,38696,26667,22982,65562,88916,04763			557
563	2.75050,83948,51346,22909,45827,07761,08389,89309,27510,02997,46276,52704			563
569	2.75511,22663,95071,17228,70555,24030,20058,87808,40566,56954,49337,66216			569
571	2.75663,61082,45848,05004,02841,30031,39578,08074,83371,59899,19622,25374			571
577	2.76117,58131,55731,42848,88336,67563,87165,18349,94631,00807,86067,50694			577
587	2.76863,81012,47614,47606,35592,98596,71376,19981,12590,05673,24995,75855			587
593	2.77305,46933,64262,60639,66715,59821,78133,09249,84055,79042,65224,21612			593
599	2.77742,68223,89311,37982,81725,69101,74684,25198,87827,14494,37552,48503			599
601	2.77887,44720,02739,52088,58506,99987,83983,48917,52297,24032,80181,14509			601
607	2.78318,86910,75257,58096,01956,30455,93072,14062,42317,98498,79486,86854			607
613	2.78746,04745,18415,03774,22662,81456,45078,29528,38564,77870,60511,88776			613
617	2.79028,51640,33241,68204,54661,67275,45331,98845,73431,18231,76836,31756			617
619	2.79169,06490,20117,97679,79674,34394,50849,41105,79264,06695,48606,13408			619
631	2.80002,93592,44134,31301,69298,49975,36836,15526,21483,45926,22618,81940			631
641	2.80685,80295,18817,42224,83770,09638,02810,30784,64091,37064,08860,01637			641
643	2.80821,09729,24222,07249,19385,05465,83232,48443,16034,72535,33279,47569			643
647	2.81090,42806,68700,38445,84305,62795,35772,33374,52752,88620,55534,78538			647

N	Tab. 5	to 61 PLACES.	(207)	N
653	2.81491,31812,75073,92142,93105,65465,57968,44420,93073,59911,14836,790768			653
659	2.81888,54145,94009,86128,04846,07065,03884,71245,58914,63114,16630,437450			659
661	2.82020,14594,85640,23664,65718,97680,09240,24475,29556,41077,27411,001763			661
673	2.32801,50642,23976,84647,61709,94824,66587,84392,73852,95699,07219,527629			673
677	2.83058,86686,85144,31600,60170,60287,15791,96987,21869,42085,75219,422835			677
683	2.83442,07036,51532,56339,98239,41016,94314,12519,92074,22395,15101,356100			683
691	2.83947,80473,74198,40758,33677,24326,62643,33706,67025,71535,20883,200815			691
701	2.84571,80179,66658,65706,40223,37250,30440,16828,60606,06710,99378,642626			701
709	2.85064,62351,83066,54285,38844,79778,89914,12079,23464,57372,91344,715434			709
719	2.85672,88903,82882,60776,76506,51400,88113,55319,50785,66409,97910,273675			719
727	2.86153,44108,59037,83621,34642,48678,39613,39988,70242,96505,05660,709999			727
733	2.86510,39746,41127,94317,28131,02559,86776,12051,12268,36141,01539,967269			733
739	2.86864,44383,94825,73669,35855,14263,03827,78685,62960,06015,93030,162646			739
743	2.87098,88137,60575,29242,26723,41223,78639,86402,35201,25826,22906,426196			743
751	2.87563,99370,04168,38974,59851,09251,08913,79777,69486,72300,09449,287788			751
757	2.87909,58795,00072,75709,02275,46289,28831,29598,55610,77568,18424,909661			757
761	2.88138,46567,70572,82636,87243,35559,42944,66262,26115,19329,16113,770466			761
769	2.88592,63398,01431,03960,42922,39990,68928,55438,24266,73676,32539,540297			769
773	2.88817,94939,18324,90897,46881,27193,74602,82128,27448,51788,65363,250475			773
787	2.89597,47323,59064,55847,49105,93093,84403,00557,33235,30892,05759,509372			787
797	2.90145,83213,96112,34726,66008,27220,37150,60763,80048,04080,90214,871170			797
809	2.90794,85216,12272,30432,36285,45880,42151,46893,16537,70803,38111,022662			809
811	2.90902,08542,11156,03069,03308,43322,97484,96977,10258,36812,36616,489430			811
821	2.91434,31571,19440,77180,40593,41703,71406,12897,21030,05294,12843,731072			821
823	2.91539,98352,12269,83976,77077,56599,55165,51291,17431,03959,46095,528115			823
827	2.91750,55095,52546,67071,16671,84496,53756,13593,71051,63043,50219,579982			827
829	2.91855,45305,50273,55311,51367,88077,88199,00092,68851,27047,81176,310395			829
839	2.92376,19608,28700,27499,86012,26886,40032,82838,28125,42235,16955,539741			839
853	2.93094,90311,67523,02999,84110,76276,53284,29746,89789,10727,91914,333868			853
857	2.93298,08219,23198,16429,25296,94730,29838,44651,50336,72985,47521,566946			857
859	2.93399,31638,31242,30262,85442,12269,31107,61700,39788,21370,73414,600987			859
863	2.93601,07957,15209,59266,36308,69754,18427,13577,12652,84446,77410,023962			863
877	2.94299,95933,66040,51822,80278,38057,14352,55114,87250,72879,32283,432978			877
881	2.94497,59084,12047,91274,23677,89471,82528,26645,36543,68702,11333,796990			881
883	2.94596,07035,77568,58561,59053,73327,89211,59413,79689,03497,15640,730610			883
887	2.94792,36198,31726,39219,65090,14904,07473,08873,98971,33598,00988,034704			887
907	2.95760,72870,60095,25584,72139,01553,62348,76134,78601,27524,63755,591947			907
911	2.95951,83769,72998,24763,28008,17777,19688,55416,00035,05336,77914,276734			911
919	2.96331,55111,38611,26519,69202,08586,23523,20678,28235,45128,04319,378878			919
929	2.96801,57139,93641,76318,47673,87869,08415,56826,51327,04702,61455,402055			929
937	2.97173,95908,87778,26302,75767,32122,15899,55792,61709,53802,51627,468099			937
941	2.97358,90234,27256,90834,22975,10551,79624,82320,81816,02752,59675,858750			941
947	2.97634,99790,03273,41875,01137,75925,22039,01622,95145,93964,50857,664310			947
953	2.97909,29006,38326,40853,29398,47717,31227,47302,58220,10598,20494,365710			953
967	2.98542,64740,83001,67359,77060,21186,62711,98227,26427,50112,12208,635787			967
971	2.98721,92299,08004,86280,31389,06536,25140,40531,99430,54589,06195,031834			971
977	2.98989,45637,18773,07091,48028,11052,34926,25914,08310,84838,41813,133125			977
983	2.99255,35178,32135,62274,96349,24741,43755,19748,79290,01915,16629,651606			983
991	2.99607,36544,85275,32836,44343,78815,42086,41325,12663,22812,08187,848418			991
997	2.99869,51583,11655,71988,13717,02813,27239,27091,29009,56252,34578,237114			997
1009	3.00389,11662,36910,52171,52813,16509,55886,55201,95652,55260,09846,382385			1009
1013	3.00560,94453,60280,42845,01617,20070,22165,08630,76662,06266,67962,258954			1013
1019	3.00817,41840,06426,39490,49899,22311,83296,76922,24936,36781,15542,425256			1019
1021	3.00902,57420,86910,24724,81480,36966,37851,03031,35315,99655,45437,518936			1021
1031	3.01325,86652,83516,54690,96644,09013,44583,24998,28006,59445,12546,301730			1031
1033	3.01410,03215,19620,57904,40100,62744,77060,74356,51400,55338,40683,272162			1033
1039	3.01661,55475,57177,41240,21010,01361,62758,71828,97066,20300,27455,551333			1039
1049	3.02077,54881,93557,85990,72007,63899,91741,19141,56191,40400,29271,212173			1049
1051	3.02160,27160,28242,22008,37688,89097,91687,94575,69660,00863,13290,071509			1051
1061	3.02571,53839,01340,66612,28844,73990,78253,18778,56167,59546,12209,837461			1061
1063	3.02653,32645,23296,75697,14741,94622,85093,72551,33664,50701,42150,299662			1063
1069	3.02897,77052,08778,01749,01456,79857,36936,27594,48925,00824,96999,029598			1069
1087	3.03622,95440,86294,53992,62573,76344,44115,71246,06239,23536,42216,494710			1087
1091	3.03782,47505,88341,87761,10634,29318,59826,96526,11482,20421,01725,763338			1091
1093	3.03862,01619,49702,79226,92555,27640,43892,49476,76830,67575,50087,010561			1093
1097	3.04020,66275,74711,13221,54832,40551,60744,80236,80562,48547,77531,009418			1097

T A B L E VI. Logarithms to 61 Places														
Num	1st Difference for 30 Places										2d Difference	3d Difference	4th Diff	
999980	4343,02950	81082	88314	31605	4343,02516	46998	42672	97511	4343,10111	69269	61875	86,86371	72279	26,05955
999981	4343,02082	18972	63403	35636	4343,01647	88047	80479	40085	4343,30924	82932	95551	86,86345	66324	26,05944
999982	4343,01213	35720	98387	50491	4343,00779	26458	73564	24190	4343,30837	96604	35171	86,86319	60380	26,05934
999983	4343,00344	95794	49520	91990	4343,00163	52171	11719	02400	4343,30751	10310	80724	86,86293	54447	26,05923
999984	4342,99910	65217	11719	02400	4342,99476	34726	60132	44951	4343,30664	24043	32200	36,86267	48523	26,05913
999985	4342,99476	34726	60132	44951	4342,99042	04322	29473	52745	4343,30577	37801	89590	36,86241	42611	26,05902
999986	4342,99042	04322	29473	52745	4342,98607	74006	15501	30323	4343,30490	51586	52881	36,86215	33670	26,05892
999987	4342,98607	74006	15501	30323	4342,98173	43770	22404	52256	4343,30403	65397	22065	36,86189	30816	26,05882
999988	4342,98173	43770	22404	52256	4342,97739	13633	15418	37393	4343,30316	79233	97130	36,86163	24935	26,05871
999989	4342,97739	13633	15418	37393	4342,97304	83576	94518	29881	4343,30229	93096	78067	36,86137	19064	26,05861
999990	4342,97304	83576	94518	29881	4342,96870	53607	59676	73883	4343,30143	06985	64364	36,86085	97353	26,05850
999991	4342,96870	53607	59676	73883	4342,96436	23725	10868	13568	4343,30056	20900	57511	36,86059	21513	26,05840
999992	4342,96436	23725	10868	13568	4342,96001	93929	48066	43117	4343,29969	34841	55995	36,86032	95683	26,05829
999993	4342,96001	93929	48066	43117	4342,95567	64220	71245	56722	4343,29882	48808	60315	36,86006	89864	26,05819
999994	4342,95567	64220	71245	56722	4342,95133	34598	80379	48585	4343,29795	62501	17045	36,85980	84056	26,05809
999995	4342,95133	34598	80379	48585	4342,94699	05003	75442	12918	4343,29708	76820	36395	36,85954	78252	26,05798
999996	4342,94699	05003	75442	12918	4342,94264	75615	55640	74394	4343,29621	90866	08137	36,85928	72401	26,05788
999997	4342,94264	75615	55640	74394	4342,93830	46254	23249	35893	4343,29535	04937	35667	36,85902	66692	26,05777
999998	4342,93830	46254	23249	35893	4342,93396	16979	75941	83013	4343,29448	19034	68975	36,85876	60926	26,05767
999999	4342,93396	16979	75941	83013	4342,92961	87792	14458	79556	4343,29361	33158	08049	36,85850	55164	26,05756
100000	4342,92961	87792	14458	79556	4342,92527	58691	38774	19787	4343,29274	47307	52880	36,85824	49423	26,05746
100001	4342,92527	58691	38774	19787	4342,92093	29677	48861	97980	4343,29187	61483	03457	36,85798	43688	26,05730
100002	4342,92093	29677	48861	97980	4342,91659	00750	44696	08421	4343,29100	75684	59769	36,85772	37992	26,05725
100003	4342,91659	00750	44696	08421	4342,91224	71910	26255	45404	4343,29013	89912	21807	36,85746	32224	26,05715
100004	4342,91224	71910	26255	45404	4342,90790	43156	93499	03237	4343,28927	04165	59559	36,85720	26543	26,05704
100005	4342,90790	43156	93499	03237	4342,90366	14190	46415	76236	4343,28840	18445	63016	36,85694	20049	26,05694
100006	4342,90366	14190	46415	76236	4342,89921	85910	84974	58728	4343,28753	32751	42167	36,85668	15106	26,05684
100007	4342,89921	85910	84974	58728	4342,89487	57418	09149	45049	4343,28666	47083	27001	36,85642	09493	26,05673
100008	4342,89487	57418	09149	45049	4342,89053	29012	18914	29548	4343,28579	61441	17500	36,85616	03830	26,05663
100009	4342,89053	29012	18914	29548	4342,88619	00693	14243	06583	4343,28492	75825	13670	36,85590	98171	26,05652
100010	4342,88619	00693	14243	06583	4342,88184	72460	99510	70523	4343,28405	90235	15501	36,85563	92536	26,05642
100011	4342,88184	72460	99510	70523	4342,87750	44311	56148	15746	4343,28319	04671	22965	36,85537	86995	26,05631
100012	4342,87750	44311	56148	15746	4342,87316	16257	13352	36643	4343,28232	19133	36060	36,85511	81254	26,05621
100013	4342,87316	16257	13352	36643	4342,86881	88235	50676	27612	4343,28145	33621	54777	36,85485	75675	26,05611
100014	4342,86881	88235	50676	27612	4342,86447	60400	73433	83064	4343,28058	48135	71004	36,85459	70001	26,05600
100015	4342,86447	60400	73433	83064	4342,86013	32602	81598	97420	4343,27971	62670	09031	36,85433	64428	26,05590
100016	4342,86013	32602	81598	97420	4342,85579	04862	90000	00000	4343,27884	77242	44548	36,85407	58904	26,05579

Tab. 7

HYPERBOLIC LOGARITHMS.

(209)

N	Logar.	N	Logar.	N	Logar.	N	Logar.	N	Logar.
1.01	0.0099503	1.51	0.4121097	2.01	0.6981347	2.51	0.9202828	3.01	1.1019401
1.02	0.0198026	1.52	0.4187103	2.02	0.7030975	2.52	0.9242539	3.02	1.1052158
1.03	0.0295588	1.53	0.4252677	2.03	0.7080358	2.53	0.9282193	3.03	1.1085626
1.04	0.0392207	1.54	0.4317824	2.04	0.7129498	2.54	0.9321641	3.04	1.1118575
1.05	0.0487902	1.55	0.4382549	2.05	0.7178398	2.55	0.9360934	3.05	1.1151416
1.06	0.0582689	1.56	0.4446858	2.06	0.7227060	2.56	0.9400073	3.06	1.1184149
1.07	0.0676586	1.57	0.4510756	2.07	0.7275486	2.57	0.9439059	3.07	1.1216776
1.08	0.0769610	1.58	0.4574248	2.08	0.7323679	2.58	0.9477894	3.08	1.1249296
1.09	0.0861777	1.59	0.4637340	2.09	0.7371641	2.59	0.9516579	3.09	1.1281711
1.10	0.0953102	1.60	0.4700036	2.10	0.7419373	2.60	0.9555114	3.10	1.1314021
1.11	0.1043600	1.61	0.4762342	2.11	0.7466879	2.61	0.9593502	3.11	1.1346227
1.12	0.1133287	1.62	0.4824261	2.12	0.7514161	2.62	0.9631743	3.12	1.1378330
1.13	0.1222176	1.63	0.4885800	2.13	0.7561220	2.63	0.9669838	3.13	1.1410330
1.14	0.1310283	1.64	0.4946962	2.14	0.7608058	2.64	0.9707789	3.14	1.1442228
1.15	0.1397619	1.65	0.5007753	2.15	0.7654678	2.65	0.9745596	3.15	1.1474025
1.16	0.1484200	1.66	0.5068176	2.16	0.7701082	2.66	0.9783261	3.16	1.1505720
1.17	0.1570037	1.67	0.5128236	2.17	0.7747272	2.67	0.9820785	3.17	1.1537316
1.18	0.1655144	1.68	0.5187938	2.18	0.7793249	2.68	0.9858168	3.18	1.1568812
1.19	0.1739533	1.69	0.5247285	2.19	0.7839015	2.69	0.9895412	3.19	1.1600209
1.20	0.1823216	1.70	0.5306283	2.20	0.7884574	2.70	0.9932518	3.20	1.1631508
1.21	0.1906204	1.71	0.5364934	2.21	0.7929925	2.71	0.9969486	3.21	1.1662709
1.22	0.1988509	1.72	0.5423243	2.22	0.7975072	2.72	1.0006319	3.22	1.1693814
1.23	0.2070142	1.73	0.5481214	2.23	0.8020016	2.73	1.0043016	3.23	1.1724821
1.24	0.2151114	1.74	0.5538851	2.24	0.8064759	2.74	1.0079579	3.24	1.1755733
1.25	0.2231436	1.75	0.5596158	2.25	0.8109302	2.75	1.0116009	3.25	1.1786550
1.26	0.2311117	1.76	0.5653138	2.26	0.8153648	2.76	1.0152307	3.26	1.1817272
1.27	0.2390169	1.77	0.5709795	2.27	0.8197798	2.77	1.0188473	3.27	1.1847900
1.28	0.2468601	1.78	0.5766134	2.28	0.8241754	2.78	1.0224509	3.28	1.1878434
1.29	0.2546422	1.79	0.5822156	2.29	0.8285518	2.79	1.0260416	3.29	1.1908876
1.30	0.2623643	1.80	0.5877867	2.30	0.8329091	2.80	1.0296194	3.30	1.1939225
1.31	0.2700271	1.81	0.5933268	2.31	0.8372475	2.81	1.0331845	3.31	1.1969482
1.32	0.2776317	1.82	0.5988365	2.32	0.8415672	2.82	1.0367369	3.32	1.1999648
1.33	0.2851789	1.83	0.6043160	2.33	0.8458683	2.83	1.0402767	3.33	1.2029723
1.34	0.2926696	1.84	0.6097656	2.34	0.8501509	2.84	1.0438041	3.34	1.2059708
1.35	0.3001046	1.85	0.6151856	2.35	0.8544153	2.85	1.0473190	3.35	1.2089603
1.36	0.3074847	1.86	0.6205765	2.36	0.8586616	2.86	1.0508217	3.36	1.2119410
1.37	0.3148107	1.87	0.6259384	2.37	0.8628899	2.87	1.0543121	3.37	1.2149127
1.38	0.3220835	1.88	0.6312718	2.38	0.8671005	2.88	1.0577903	3.38	1.2178757
1.39	0.3293037	1.89	0.6365768	2.39	0.8712933	2.89	1.0612565	3.39	1.2208299
1.40	0.3364722	1.90	0.6418539	2.40	0.8754687	2.90	1.0647107	3.40	1.2237754
1.41	0.3435897	1.91	0.6471032	2.41	0.8796267	2.91	1.0681531	3.41	1.2267123
1.42	0.3506569	1.92	0.6523252	2.42	0.8837675	2.92	1.0715836	3.42	1.2296406
1.43	0.3576745	1.93	0.6575200	2.43	0.8878913	2.93	1.0750024	3.43	1.2325603
1.44	0.3646431	1.94	0.6626880	2.44	0.8919980	2.94	1.0784096	3.44	1.2354715
1.45	0.3715636	1.95	0.6678294	2.45	0.8960880	2.95	1.0818052	3.45	1.2383742
1.46	0.3784364	1.96	0.6729445	2.46	0.9001613	2.96	1.0851893	3.46	1.2412686
1.47	0.3852624	1.97	0.6780335	2.47	0.9042182	2.97	1.0885619	3.47	1.2441546
1.48	0.3920421	1.98	0.6830968	2.48	0.9082586	2.98	1.0919233	3.48	1.2470323
1.49	0.3987761	1.99	0.6881346	2.49	0.9122827	2.99	1.0952734	3.49	1.2499017
1.50	0.4054651	2.00	0.6931472	2.50	0.9162907	3.00	1.0986123	3.50	1.2527630

N	Loga.	N	Loga.	N	Loga.	N	Loga.	N	Loga.
3 51	1 2556160	4 01	1 3887912	4 51	1 5062971	5 01	1 6114359	5 51	1 7065646
3 52	1 2584610	4 02	1 3912819	4 52	1 5085120	5 02	1 6134299	5 52	1 7081742
3 53	1 2612979	4 03	1 3937664	4 53	1 5107219	5 03	1 6154200	5 53	1 7101874
3 54	1 2641267	4 04	1 3962447	4 54	1 5129270	5 04	1 6174061	5 54	1 7119915
3 55	1 2669476	4 05	1 3987169	4 55	1 5151272	5 05	1 6193883	5 55	1 7140979
3 56	1 2697605	4 06	1 4011829	4 56	1 5173226	5 06	1 6213665	5 56	1 7155981
3 57	1 2725656	4 07	1 4036429	4 57	1 5195132	5 07	1 6233408	5 57	1 7173951
3 58	1 2753628	4 08	1 4060970	4 58	1 5216990	5 08	1 6253113	5 58	1 7191888
3 59	1 2781522	4 09	1 4085450	4 59	1 5238800	5 09	1 6272778	5 59	1 7209791
3 60	1 2809338	4 10	1 4109870	4 60	1 5260563	5 10	1 6292405	5 60	1 7227661
3 61	1 2837078	4 11	1 4134230	4 61	1 5282278	5 11	1 6311994	5 61	1 7245507
3 62	1 2864710	4 12	1 4158532	4 62	1 5303947	5 12	1 6331544	5 62	1 7263117
3 63	1 2892326	4 13	1 4182774	4 63	1 5325569	5 13	1 6351057	5 63	1 7281094
3 64	1 2919837	4 14	1 4206958	4 64	1 5347144	5 14	1 6370531	5 64	1 7298841
3 65	1 2947272	4 15	1 4231083	4 65	1 5368672	5 15	1 6389967	5 65	1 7316555
3 66	1 2974631	4 16	1 4255151	4 66	1 5390154	5 16	1 6409366	5 66	1 7334239
3 67	1 3001917	4 17	1 4279160	4 67	1 5411591	5 17	1 6428727	5 67	1 7351891
3 68	1 3029128	4 18	1 4303112	4 68	1 5432981	5 18	1 6448051	5 68	1 7369512
3 69	1 3056265	4 19	1 4327007	4 69	1 5454326	5 19	1 6467337	5 69	1 7387102
3 70	1 3083328	4 20	1 4350845	4 70	1 5475625	5 20	1 6486586	5 70	1 7404662
3 71	1 3110319	4 21	1 4374626	4 71	1 5496879	5 21	1 6505799	5 71	1 7422190
3 72	1 3137237	4 22	1 4398351	4 72	1 5518088	5 22	1 6524974	5 72	1 7439689
3 73	1 3164082	4 23	1 4422020	4 73	1 5539252	5 23	1 6544113	5 73	1 7457155
3 74	1 3190856	4 24	1 4445633	4 74	1 5560371	5 24	1 6563215	5 74	1 7474593
3 75	1 3217558	4 25	1 4469190	4 75	1 5581446	5 25	1 6582281	5 75	1 7491998
3 76	1 3244190	4 26	1 4492692	4 76	1 5602476	5 26	1 6601310	5 76	1 7509375
3 77	1 3270750	4 27	1 4516138	4 77	1 5623463	5 27	1 6620304	5 77	1 7526721
3 78	1 3297210	4 28	1 4539530	4 78	1 5644405	5 28	1 6639261	5 78	1 7544037
3 79	1 3323660	4 29	1 4562868	4 79	1 5665303	5 29	1 6658182	5 79	1 7561323
3 80	1 3350011	4 30	1 4586150	4 80	1 5686159	5 30	1 6677068	5 80	1 7578579
3 81	1 3376292	4 31	1 4609379	4 81	1 5706971	5 31	1 6695918	5 81	1 7595806
3 82	1 3402504	4 32	1 4632554	4 82	1 5727739	5 32	1 6714733	5 82	1 7613003
3 83	1 3428648	4 33	1 4655675	4 83	1 5748465	5 33	1 6733512	5 83	1 7630170
3 84	1 3454724	4 34	1 4678743	4 84	1 5769147	5 34	1 6752257	5 84	1 7647308
3 85	1 3480731	4 35	1 4701758	4 85	1 5789787	5 35	1 6770966	5 85	1 7664416
3 86	1 3506672	4 36	1 4724721	4 86	1 5810384	5 36	1 6789640	5 86	1 7681496
3 87	1 3532545	4 37	1 4747630	4 87	1 5830939	5 37	1 6808279	5 87	1 7698546
3 88	1 3558352	4 38	1 4770487	4 88	1 5851452	5 38	1 6826884	5 88	1 7715568
3 89	1 3584092	4 39	1 4793292	4 89	1 5871923	5 39	1 6845454	5 89	1 7732560
3 90	1 3609766	4 40	1 4816045	4 90	1 5892352	5 40	1 6863990	5 90	1 7749524
3 91	1 3635374	4 41	1 4838747	4 91	1 5912739	5 41	1 6882491	5 91	1 7766454
3 92	1 3660917	4 42	1 4861397	4 92	1 5933085	5 42	1 6900958	5 92	1 7783361
3 93	1 3686394	4 43	1 4883996	4 93	1 5953390	5 43	1 6919391	5 93	1 7800217
3 94	1 3711807	4 44	1 4906544	4 94	1 5973653	5 44	1 6937791	5 94	1 7817091
3 95	1 3737156	4 45	1 4929041	4 95	1 5993876	5 45	1 6956156	5 95	1 7833912
3 96	1 3762440	4 46	1 4951488	4 96	1 6014057	5 46	1 6974488	5 96	1 7850705
3 97	1 3787661	4 47	1 4973884	4 97	1 6034198	5 47	1 6992786	5 97	1 7867469
3 98	1 3812818	4 48	1 4996230	4 98	1 6054299	5 48	1 7011051	5 98	1 7884206
3 99	1 3837912	4 49	1 5018527	4 99	1 6074359	5 49	1 7029283	5 99	1 7900911
4 00	1 3862944	4 50	1 5040774	5 00	1 6094379	5 50	1 7047481	6 00	1 7917595

N	Logu	N	Logu	N	Logu	N	Logu	N	Logu
6 01	1 7931247	6 51	1 8733395	7 01	1 9173377	7 51	2 0162355	8 01	2 0806908
6 02	1 7950873	6 52	1 8748711	7 02	1 9187632	7 52	2 0175661	8 02	2 0819384
6 03	1 7967170	6 53	1 8764069	7 03	1 9501867	7 53	2 0188950	8 03	2 0831815
6 04	1 7981040	6 54	1 8779372	7 04	1 9516082	7 54	2 0202222	8 04	2 0844291
6 05	1 8000583	6 55	1 8791650	7 05	1 9530276	7 55	2 0215476	8 05	2 08567-1
6 06	1 8017098	6 56	1 8809906	7 06	1 9544451	7 56	2 0228712	8 06	2 0869136
6 07	1 8033586	6 57	1 8825138	7 07	1 9558605	7 57	2 0241931	8 07	2 0881535
6 08	1 8050017	6 58	1 8840317	7 08	1 9572739	7 58	2 0255132	8 08	2 0893919
6 09	1 8066481	6 59	1 8855533	7 09	1 9586853	7 59	2 0268316	8 09	2 0906287
6 10	1 8082888	6 60	1 8870696	7 10	1 9600948	7 60	2 0281482	8 10	2 0918641
6 11	1 8099268	6 61	1 8885836	7 11	1 9615022	7 61	2 0294632	8 11	2 0930979
6 12	1 8115621	6 62	1 8900954	7 12	1 9629077	7 62	2 0307764	8 12	2 0943301
6 13	1 8131917	6 63	1 8916048	7 13	1 9643112	7 63	2 0320878	8 13	2 0955609
6 14	1 8148247	6 64	1 8931120	7 14	1 9657128	7 64	2 0333976	8 14	2 0967901
6 15	1 8164521	6 65	1 8946169	7 15	1 9671124	7 65	2 0347056	8 15	2 0980179
6 16	1 8180768	6 66	1 8961195	7 16	1 9685100	7 66	2 0360120	8 16	2 0992442
6 17	1 8196988	6 67	1 8976108	7 17	1 9699056	7 67	2 0373166	8 17	2 1004689
6 18	1 8213183	6 68	1 8991180	7 18	1 9712991	7 68	2 0386195	8 18	2 1016922
6 19	1 8229351	6 69	1 9006139	7 19	1 9726912	7 69	2 0399208	8 19	2 1029139
6 20	1 8245493	6 70	1 9021075	7 20	1 9740810	7 70	2 0412203	8 20	2 1041342
6 21	1 8261609	6 71	1 9035990	7 21	1 9754690	7 71	2 0425182	8 21	2 1053529
6 22	1 8277699	6 72	1 9050882	7 22	1 9768550	7 72	2 0438144	8 22	2 1065702
6 23	1 8293763	6 73	1 9065751	7 23	1 9782390	7 73	2 0451089	8 23	2 1077860
6 24	1 8309802	6 74	1 9080599	7 24	1 9796212	7 74	2 0464017	8 24	2 1090003
6 25	1 8325815	6 75	1 9095425	7 25	1 9810015	7 75	2 0476928	8 25	2 1102125
6 26	1 8341802	6 76	1 9110229	7 26	1 9823798	7 76	2 0489823	8 26	2 1114246
6 27	1 8357764	6 77	1 9125011	7 27	1 9837563	7 77	2 0502702	8 27	2 1126345
6 28	1 8373700	6 78	1 9139771	7 28	1 9851309	7 78	2 0515563	8 28	2 1138430
6 29	1 8389611	6 79	1 9154509	7 29	1 9865035	7 79	2 0528409	8 29	2 1150500
6 30	1 8405496	6 80	1 9169226	7 30	1 9878743	7 80	2 0541237	8 30	2 1162555
6 31	1 8421357	6 81	1 9183921	7 31	1 9892433	7 81	2 0554050	8 31	2 1174596
6 32	1 8437192	6 82	1 9198595	7 32	1 9906103	7 82	2 0566846	8 32	2 1186623
6 33	1 8453002	6 83	1 9213247	7 33	1 9919755	7 83	2 0579625	8 33	2 1198634
6 34	1 8468748	6 84	1 9227877	7 34	1 9933388	7 84	2 0592388	8 34	2 1210632
6 35	1 8484518	6 85	1 9242487	7 35	1 9947003	7 85	2 0605135	8 35	2 1222615
6 36	1 8500281	6 86	1 9257071	7 36	1 9960599	7 86	2 0617866	8 36	2 1234581
6 37	1 8515995	6 87	1 9271641	7 37	1 9974177	7 87	2 0630581	8 37	2 1246539
6 38	1 8531681	6 88	1 9286187	7 38	1 9987736	7 88	2 0643279	8 38	2 1258479
6 39	1 8547313	6 89	1 9300711	7 39	2 0001277	7 89	2 0655961	8 39	2 1270405
6 40	1 8562980	6 90	1 9315214	7 40	2 0014800	7 90	2 0668628	8 40	2 1282317
6 41	1 8578593	6 91	1 9329696	7 41	2 0028301	7 91	2 0681278	8 41	2 1294215
6 42	1 8594181	6 92	1 9344158	7 42	2 0041791	7 92	2 0693912	8 42	2 1306098
6 43	1 8609715	6 93	1 9358598	7 43	2 0055259	7 93	2 0706530	8 43	2 1317968
6 44	1 8625285	6 94	1 9373018	7 44	2 0068708	7 94	2 0719133	8 44	2 1329823
6 45	1 8640801	6 95	1 9387417	7 45	2 0082140	7 95	2 0731719	8 45	2 1341664
6 46	1 8656293	6 96	1 9401795	7 46	2 0095551	7 96	2 0744290	8 46	2 1353492
6 47	1 8671761	6 97	1 9416152	7 47	2 0108950	7 97	2 0756845	8 47	2 1365305
6 48	1 8687205	6 98	1 9430489	7 48	2 0122328	7 98	2 0769381	8 48	2 1377101
6 49	1 8702625	6 99	1 9444805	7 49	2 0135688	7 99	2 0781907	8 49	2 1388890
6 50	1 8718022	7 00	1 9459101	7 50	2 0149030	8 00	2 0794415	8 50	2 1400662

Tab 8

LOGISTIC LOGARITHMS

(213)

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	0	60	120	180	240	300	360	420	480	540	600	660	720	780	840
0		1 7782	1 4771	1 3010	1 1741	1 0799	0000	9331	8751	839	778	7361	6970	6642	63 0
1	3 5563	1 7710	1 4735	1 2986	1 1743	1 0777	9988	9320	8742	837	774	7361	6970	6637	6315
2	3 2553	1 7639	1 4691	1 2962	1 1725	1 0763	9976	9310	8733	833	7707	7354	6965	6631	6310
3	3 0792	1 7570	1 4664	1 2939	1 1707	1 0749	9964	9300	8715	831	7676	7343	6954	6625	6305
4	2 954	1 7501	1 4629	1 2915	1 1689	1 0734	9952	9289	8700	829	7653	7331	6946	6620	6300
5	2 8573	1 7434	1 4594	1 2891	1 1671	1 0720	9940	9279	8686	829	7639	7319	6936	6614	6294
6	2 778	1 7368	1 4559	1 2868	1 1654	1 0706	9928	9269	8671	827	7625	7307	6923	6609	6289
7	2 7112	1 7302	1 4525	1 2845	1 1636	1 0692	9916	9259	8658	826	7611	7295	6910	6603	6284
8	2 6532	1 7236	1 4491	1 2821	1 1619	1 0678	9905	9249	8645	825	7597	7281	6901	6598	6279
9	2 6021	1 7175	1 4457	1 2798	1 1601	1 0663	9893	9239	8632	824	7583	7267	6892	6593	6274
10	2 5563	1 7112	1 4424	1 2775	1 1581	1 0649	9881	9229	8619	823	7569	7253	6883	6588	6269
11	2 5141	1 7050	1 4390	1 2753	1 1566	1 0635	9869	9219	8606	822	7555	7239	6874	6581	6264
12	2 4771	1 6990	1 4357	1 2730	1 1549	1 0621	9858	9208	8593	821	7541	7225	6865	6576	6259
13	2 4424	1 6930	1 4325	1 2707	1 153	1 0607	9846	9198	8580	820	7527	7211	6856	6570	6254
14	2 4102	1 6871	1 4292	1 2685	1 1515	1 0593	9834	9188	8567	819	7513	7197	6847	6565	6248
15	2 3773	1 6812	1 4260	1 2663	1 1498	1 0580	9823	9178	8554	818	7500	7183	6838	6559	6243
16	2 352	1 6755	1 4228	1 2640	1 1481	1 0566	9811	9168	8541	817	7486	7169	6829	6554	6238
17	2 3 59	1 6698	1 4196	1 2618	1 1464	1 0552	9799	9158	8528	816	7472	7155	6820	6549	6233
18	301	1 6642	1 4165	1 2596	1 1447	1 0539	9788	9148	8515	815	7458	7141	6811	6543	6228
19	2 2775	1 6587	1 4133	1 2574	1 143	1 0525	9776	9138	8502	814	7444	7127	6802	6538	6223
20	2 2553	1 6532	1 4102	1 2552	1 1413	1 0511	9765	9128	8489	813	7430	7113	6793	6532	6218
21	2 2311	1 6478	1 4071	1 2531	1 1397	1 0498	9753	9119	8476	812	7416	7099	6784	6527	6213
22	2 2139	1 6425	1 4040	1 2510	1 1380	1 0484	9742	9109	8463	811	7402	7085	6775	6521	6208
23	2 1946	1 6372	1 4010	1 2488	1 1363	1 0471	9731	9099	8450	810	7388	7071	6766	6516	6203
24	1761	1 632	1 3979	1 2467	1 1347	1 0458	9720	9089	8437	809	7374	7057	6757	6510	6198
25	1584	1 6269	1 3948	1 2445	1 1331	1 0445	9709	9079	8424	808	7360	7043	6748	6505	6193
26	1 1	1 6212	1 3919	1 2424	1 1314	1 0431	9698	9069	8411	807	7346	7029	6739	6500	6188
27	2 1219	1 6168	1 3890	1 2403	1 1298	1 0418	9687	9059	8398	806	7332	7015	6730	6494	6183
28	2 1091	1 6115	1 3860	1 2380	1 128	1 0404	9675	9050	8385	805	7318	7001	6721	6489	6178
29	2 0939	1 6069	1 3831	1 2362	1 1266	1 0391	9664	9040	8372	804	7304	6987	6712	6484	6173
30	2 0792	1 6021	1 3802	1 2341	1 1249	1 0378	9652	9031	8359	803	7290	6973	6703	6479	6168
31	2 0649	1 5973	1 3773	1 2320	1 1233	1 0365	9641	9021	8346	802	7276	6959	6694	6474	6163
32	2 0512	1 5925	1 3745	1 2300	1 1217	1 0352	9630	9012	8333	801	7262	6945	6685	6469	6158
33	2 0378	1 5878	1 3716	1 2279	1 1201	1 0339	9619	9002	8320	800	7248	6931	6676	6464	6153
34	2 0248	1 5832	1 3688	1 2259	1 1186	1 0326	9608	8992	8307	799	7234	6917	6667	6459	6148
35	2 0122	1 5786	1 3660	1 2239	1 1170	1 0313	9597	8983	8294	798	7220	6903	6658	6454	6143
36	2 0000	1 5740	1 3632	1 2218	1 1154	1 0300	9586	8973	8281	797	7206	6889	6649	6449	6138
37	1 9881	1 5695	1 3604	1 2198	1 1138	1 0287	9575	8964	8268	796	7192	6875	6640	6444	6133
38	1 9765	1 5651	1 3576	1 2178	1 1123	1 0274	9564	8955	8255	795	7178	6861	6631	6439	6128
39	1 9652	1 5607	1 3549	1 2159	1 1107	1 0261	9553	8946	8242	794	7164	6847	6622	6434	6123
40	1 954	1 5563	1 35	1 2139	1 1091	1 0248	9542	8937	8229	793	7150	6833	6613	6429	6118
41	1 9435	1 5520	1 3495	1 2119	1 1076	1 0235	9531	8928	8216	792	7136	6819	6604	6424	6113
42	1 9331	1 5477	1 3468	1 2099	1 1061	1 0223	9521	8919	8203	791	7122	6805	6595	6419	6108
43	1 9228	1 5435	1 3441	1 2080	1 1045	1 0210	9510	8910	8190	790	7108	6791	6586	6414	6103
44	1 9128	1 5393	1 3415	1 2061	1 1030	1 0197	9500	8901	8177	789	7094	6777	6577	6409	6099
45	1 9031	1 5351	1 3388	1 2041	1 1015	1 0185	9489	8892	8164	788	7080	6763	6568	6404	6094
46	1 8935	1 5310	1 3362	1 2022	1 0999	1 0172	9478	8883	8151	787	7066	6749	6559	6399	6089
47	1 8842	1 5269	1 3336	1 2003	1 0984	1 0160	9467	8874	8138	786	7052	6735	6550	6394	6084
48	1 8751	1 5229	1 3310	1 1984	1 0969	1 0147	9456	8865	8125	785	7038	6721	6541	6389	6079
49	1 8661	1 5189	1 3284	1 1965	1 0954	1 0135	9445	8856	8112	784	7024	6707	6532	6384	6074
50	1 8573	1 5149	1 3259	1 1946	1 0939	1 0122	9434	8847	8100	783	7010	6693	6523	6379	6069
51	1 8487	1 5110	1 3234	1 1927	1 0924	1 0110	9423	8838	8087	782	7006	6679	6514	6374	6064
52	1 8403	1 5071	1 3208	1 1908	1 0909	1 0098	9412	8829	8074	781	6992	6665	6505	6369	6059
53	1 8320	1 503	1 3183	1 1889	1 0894	1 0085	9401	8820	8061	780	6978	6651	6496	6364	6054
54	1 8239	1 4994	1 3158	1 1871	1 0880	1 0073	9390	8811	8048	779	6964	6637	6487	6359	6049
55	1 8159	1 4957	1 3133	1 1852	1 0865	1 0061	9380	8802	8035	778	6950	6623	6478	6354	6044
56	1 8081	1 4918	1 3108	1 1833	1 0850	1 0049	9369	8793	8022	777	6936	6609	6469	6349	6039
57	1 8004	1 4881	1 3083	1 1816	1 0835	1 0036	9358	8784	8009	776	6922	6595	6460	6344	6034
58	1 7929	1 4844	1 3059	1 1797	1 0821	1 0024	9347	8775	7996	775	6908	6581	6451	6339	6029
59	1 7855	1 4808	1 3034	1 1779	1 0806	1 0012	9336	8766	7983	774	6894	6567	6442	6334	6024
60	1 7782	1 4771	1 3010	1 1761	1 0792	1 0000	9325	8757	7970	773	6880	6553	6433	6329	6019

(214)

LOGISTIC LOGARITH

Tab 8

	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0	900	960	1020	1080	1140	1200	1260	1320	1380	1440	1500	1560	1620	1680	1740	1800	1860
1	5021	5740	5177	5229	4994	1771	1559	4557	4164	3979	3800	3632	3468	3310	3158	3010	2868
2	5016	5736	5473	5225	4990	1768	1556	4554	4161	3976	3799	3620	3465	3307	3155	3005	2866
3	5011	5731	5469	5221	4986	1764	1552	4551	4158	3973	3796	3616	3461	3303	3151	3001	2861
4	5006	5727	5464	5217	4983	1760	1549	4547	4155	3970	3793	3613	3458	3300	3148	3000	2859
5	5001	5722	5460	5213	4979	1757	1546	4544	4152	3967	3791	3611	3456	3298	3146	3000	2859
6	5007	5718	5456	5209	4975	1753	1542	4541	4149	3964	3788	3618	3454	3297	3145	2998	2856
7	5002	5713	5451	5205	4971	1750	1539	4538	4145	3961	3785	3615	3452	3294	3143	2996	2854
8	5007	5709	5447	5201	4967	1746	1535	4534	4141	3958	3782	3612	3449	3292	3140	2993	2851
9	5002	5704	5443	5197	4964	1742	1532	4531	4138	3955	3779	3610	3446	3289	3138	2991	2849
10	5007	5700	5439	5193	4960	1739	1528	4528	4135	3952	3776	3607	3444	3287	3135	2989	2847
11	5002	5695	5435	5189	4956	1735	1525	4525	4132	3949	3773	3604	3441	3284	3133	2986	2845
12	5007	5691	5431	5185	4952	1731	1522	4522	4129	3946	3770	3601	3438	3282	3130	2984	2842
13	5002	5686	5426	5181	4949	1728	1518	4518	4126	3943	3768	3598	3436	3279	3128	2981	2840
14	5007	5682	5422	5177	4945	1724	1515	4515	4123	3940	3765	3596	3433	3276	3125	2979	2838
15	5002	5677	5418	5173	4941	1721	1511	4511	4120	3937	3762	3593	3431	3274	3123	2977	2835
16	5007	5673	5414	5169	4937	1717	1508	4508	4117	3934	3759	3590	3428	3271	3120	2974	2833
17	5002	5669	5410	5165	4933	1714	1505	4505	4114	3931	3756	3587	3425	3269	3117	2972	2831
18	5007	5664	5405	5161	4930	1710	1501	4501	4111	3928	3753	3585	3423	3266	3115	2969	2828
19	5002	5660	5401	5157	4926	1707	1498	4498	4108	3925	3750	3582	3420	3264	3113	2967	2826
20	5007	5655	5397	5153	4922	1703	1494	4494	4105	3922	3747	3579	3417	3261	3110	2965	2824
21	5002	5651	5393	5149	4918	1700	1491	4491	4102	3919	3745	3576	3415	3259	3108	2962	2821
22	5007	5646	5389	5145	4915	1696	1488	4488	4099	3917	3742	3574	3412	3256	3105	2960	2819
23	5002	5642	5384	5141	4911	1692	1484	4484	4096	3914	3739	3571	3409	3253	3103	2958	2817
24	5007	5637	5380	5137	4907	1689	1481	4481	4092	3911	3736	3568	3407	3251	3101	2955	2815
25	5002	5633	5376	5133	4903	1685	1477	4477	4089	3908	3733	3565	3404	3248	3098	2953	2812
26	5007	5628	5372	5129	4900	1682	1474	4474	4086	3905	3730	3563	3401	3246	3096	2950	2810
27	5002	5624	5368	5125	4896	1678	1471	4471	4083	3902	3727	3560	3399	3243	3093	2948	2808
28	5007	5620	5364	5122	4892	1675	1467	4467	4080	3899	3725	3557	3396	3241	3091	2946	2805
29	5002	5615	5359	5118	4889	1671	1464	4464	4077	3896	3722	3555	3393	3238	3088	2943	2803
30	5007	5611	5355	5114	4885	1668	1460	4460	4074	3893	3719	3552	3391	3236	3086	2941	2801
31	5002	5607	5351	5110	4881	1664	1457	4457	4071	3890	3716	3549	3388	3233	3083	2939	2798
32	5007	5602	5347	5106	4877	1660	1454	4454	4068	3887	3713	3546	3386	3231	3081	2936	2796
33	5002	5598	5343	5102	4874	1657	1450	4450	4065	3884	3710	3544	3383	3228	3078	2934	2794
34	5007	5594	5339	5098	1653	1447	4447	4062	3881	3708	3541	3380	3225	3076	2931	2791	
35	5002	5589	5335	5094	1650	1444	4444	4059	3878	3705	3538	3378	3223	3073	2929	2789	
36	5007	5585	5331	5090	1646	1440	4440	4055	3875	3702	3535	3375	3220	3071	2927	2787	
37	5002	5580	5326	5086	1643	1437	4437	4052	3872	3699	3533	3372	3218	3069	2924	2785	
38	5007	5576	5322	5082	1640	1434	4434	4049	3869	3696	3530	3370	3215	3066	2922	2782	
39	5002	5572	5318	5079	1637	1431	4431	4046	3866	3693	3527	3367	3213	3064	2920	2780	
40	5007	5567	5314	5075	1634	1428	4428	4043	3863	3691	3525	3365	3210	3061	2917	2778	
41	5002	5563	5310	5071	1631	1425	4425	4040	3860	3688	3522	3362	3208	3059	2915	2775	
42	5007	5559	5306	5067	1628	1422	4422	4037	3857	3685	3519	3359	3205	3056	2912	2773	
43	5002	5554	5302	5063	1625	1419	4419	4034	3855	3682	3516	3357	3203	3054	2910	2771	
44	5007	5550	5298	5059	1622	1416	4416	4031	3852	3679	3514	3354	3200	3052	2908	2769	
45	5002	5546	5294	5055	1619	1413	4413	4028	3849	3677	3511	3351	3198	3049	2905	2766	
46	5007	5541	5290	5051	1616	1410	4410	4025	3846	3674	3508	3349	3195	3047	2903	2764	
47	5002	5537	5285	5048	1613	1407	4407	4022	3843	3671	3506	3346	3193	3044	2901	2762	
48	5007	5533	5281	5044	1610	1404	4404	4019	3840	3668	3503	3344	3190	3042	2898	2760	
49	5002	5528	5277	5040	1607	1401	4401	4016	3837	3665	3500	3341	3188	3039	2896	2757	
50	5007	5524	5273	5036	1604	1398	4398	4013	3834	3662	3497	3338	3185	3037	2894	2755	
51	5002	5520	5269	5032	1601	1395	4395	4010	3831	3660	3495	3336	3183	3034	2891	2753	
52	5007	5516	5265	5028	1598	1392	4392	4007	3828	3657	3492	3333	3180	3032	2889	2750	
53	5002	5511	5261	5025	1595	1389	4389	4004	3825	3654	3489	3330	3178	3030	2887	2748	
54	5007	5507	5257	5021	1592	1386	4386	4001	3822	3651	3487	3328	3175	3028	2884	2746	
55	5002	5503	5253	5017	1589	1383	4383	3998	3820	3649	3484	3325	3173	3025	2882	2744	
56	5007	5498	5249	5013	1586	1380	4380	3995	3817	3646	3481	3323	3170	3023	2880	2742	
57	5002	5494	5245	5009	1583	1377	4377	3992	3814	3643	3479	3320	3168	3021	2877	2739	
58	5007	5490	5241	5005	1580	1374	4374	3989	3811	3640	3476	3318	3165	3019	2875	2737	
59	5002	5486	5237	5002	1577	1371	4371	3986	3808	3637	3473	3315	3163	3017	2873	2735	
60	5007	5481	5233	4998	1574	1368	4368	3983	3805	3635	3471	3313	3160	3015	2870	2733	
61	5002	5477	5229	4994	1571	1365	4365	3980	3802	3632	3468	3310	3158	3013	2868	2731	

LOGISTIC LOGARITHMS																(215)
Tab 8	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
1920	1980	2040	2100	2160	2220	2280	340	400	460	520	580	640	700	760	820	
0	2,30	596	2407	2341	2218	2099	1981	1871	1761	1654	1549	1447	1347	1249	1151	1061
1	2728	2594	2465	2339	2216	2098	1980	1869	1759	1652	1547	1445	1345	1246	1148	1059
2	2725	259	462	2337	2214	2096	1980	1867	1757	1650	1546	1443	1343	1245	1147	1057
3	723	590	460	335	210	2094	1978	1865	1755	1648	1544	1441	1341	1243	1145	1056
4	1	2383	458	2333	210	2092	1976	1863	1751	1647	1542	1439	1339	1241	1143	1054
5	2719	585	456	331	208	2090	1974	1862	1752	1645	1540	1438	1337	1240	1142	1053
6	2716	2583	454	38	2206	2088	1970	1860	1750	1643	1539	143	1337	1240	1145	1051
7	2714	2581	452	36	204	2086	1970	1858	1748	1641	1537	1435	1335	1238	1143	1050
8	712	2579	450	2324	20	2084	1968	1856	1746	1640	1535	1433	1334	1237	1141	1048
9	2710	2577	2418	2322	00	2082	1967	1854	1745	1638	1534	1432	1331	1235	1140	1047
10	2707	2574	2445	220	2198	2080	1965	1852	1743	1636	153	1431	1331	1233	1138	1045
11	705	572	2443	2318	2196	2078	1963	1850	1741	1634	1530	1428	1328	1232	1137	1044
12	703	2570	2441	2316	2194	2076	1961	1849	1739	1631	1528	1427	1327	1230	1135	1042
13	2701	2568	2439	2314	2192	2074	1959	1847	1737	1631	1527	1425	1325	1229	1131	1041
14	2698	2566	437	31	2190	2072	1957	1845	1736	1629	1525	1423	1323	1227	1132	1039
15	2696	2564	435	2310	2188	2070	1955	1843	1734	1627	1523	1423	1322	1225	1131	1037
16	2694	2561	2433	308	186	2068	1953	1841	1732	1626	1522	1421	1321	1221	1127	1036
17	2692	2559	2431	2306	2184	2066	1951	1839	1730	1624	1520	1419	1319	1222	1127	1034
18	689	2557	2429	2304	2182	2064	1950	1838	1728	1622	1518	1417	1317	1221	1126	1033
19	687	2555	426	302	180	2062	1948	1836	1727	1620	1516	1415	1316	1219	1124	1031
20	685	2553	2424	2300	2178	2061	1946	1834	1725	1619	1515	1413	1314	1217	1123	1030
21	2683	2551	2422	2298	2176	2059	1944	1832	1723	1617	1513	1412	1312	1216	1121	1028
22	2681	2548	2420	2296	2174	2057	1942	1830	1721	1615	1511	1410	1310	1214	1119	1027
23	2678	546	2418	2294	2172	2055	1940	1828	1719	1613	1510	1408	1309	1213	1118	1025
24	2676	2544	2416	2291	2170	2053	1938	1827	1718	1612	1508	1407	1307	1211	1116	1024
25	2674	2542	414	2289	2169	2051	1936	1825	1716	1610	1506	1405	1305	1209	1115	1022
26	2672	540	2412	2287	2167	2049	1934	1823	1714	1608	1504	1403	1304	1208	1113	1021
27	669	2538	2410	2285	165	2047	1933	1821	1712	1606	1503	1402	1302	1206	1112	1019
28	2667	535	2408	2283	2163	2045	1931	1819	1711	1605	1501	1400	1300	1204	1110	1018
29	2665	2533	405	2281	2161	2043	1929	1817	1709	1603	1499	1398	1298	1202	1109	1016
30	663	531	2403	2279	2159	2041	1927	1816	1707	1601	1498	1397	1297	1201	1107	1015
31	2660	529	401	2277	2157	2039	1925	1811	1705	1599	1496	1395	1295	1200	1105	1013
32	2658	2527	2399	2275	155	2037	1923	1812	1703	1598	1491	1393	1293	1198	1101	1012
33	2656	2525	2397	2273	2153	2035	1921	1810	1702	1596	1493	1392	1292	1197	1102	1010
34	2654	2522	2395	2271	2151	2033	1919	1808	1700	1594	1491	1390	1290	1195	1101	1008
35	265	2520	2393	2269	149	2032	1918	1806	1698	1592	1489	1388	1288	1193	1099	1007
36	2649	2518	2391	2267	2147	2030	1916	1805	1696	1591	1487	1387	1287	1192	1098	1005
37	2647	2516	2389	2265	145	2028	1914	1803	1694	1589	1486	1385	1285	1190	1096	1004
38	2645	2514	387	2263	143	2026	1912	1801	1693	1587	1484	1383	1283	1189	1095	1002
39	2643	512	2384	2261	141	2024	1910	1799	1691	1585	1482	1382	1282	1187	1093	1001
40	2640	2510	2382	2259	139	2022	1908	1797	1689	1584	1481	1380	1280	1186	1091	9999
41	2638	2507	2380	2257	2137	2020	1906	1795	1687	1582	1479	1378	1278	1184	1090	9998
42	2636	2505	2378	2255	2135	2018	1904	1794	1686	1580	1477	1377	1277	1182	1088	9996
43	2634	2503	2376	2253	2133	2016	1903	1792	1684	1578	1476	1375	1275	1181	1087	9995
44	2632	2501	2374	2251	2131	2014	1901	1790	1682	1577	1474	1374	1274	1179	1085	9993
45	2629	2499	2372	2249	2129	2012	1899	1788	1680	1575	1472	1372	1272	1178	1084	9992
46	2627	2497	2370	2247	2127	2010	1897	1786	1678	1573	1470	1370	1270	1176	1082	9990
47	2625	2494	2368	2245	2125	2009	1895	1785	1677	1571	1469	1368	1268	1173	1081	9989
48	2623	2492	2366	2243	2123	2007	1893	1783	1675	1570	1467	1367	1267	1173	1079	9987
49	261	2490	2364	2241	2121	2005	1891	1781	1673	1568	1465	1365	1265	1171	1078	9986
50	2618	2488	2362	2239	2119	2003	1889	1779	1671	1566	1464	1364	1264	1170	1076	9984
51	2616	2486	359	23	117	2001	1888	1777	1670	1565	1462	1362	1262	1168	1074	9983
52	2614	2484	2357	2235	2115	1999	1886	1775	1668	1563	1460	1360	1260	1167	1073	9981
53	2612	2482	2355	2233	2113	1997	1884	1774	1666	1561	1459	1359	1259	1165	1071	9980
54	2610	2480	353	2231	111	1995	1882	1772	1664	1559	1457	1357	1257	1163	1070	9978
55	2607	2477	2351	2229	2109	1993	1880	1770	1663	1558	1455	1355	1255	1161	1068	9977
56	2605	2475	2349	2227	2107	1991	1878	1768	1661	1556	1454	1354	1254	1160	1067	9975
57	2603	2473	2347	2225	2105	1989	1876	1766	1659	1554	1452	1352	1252	1159	1065	9974
58	2601	2471	2345	2223	2103	1987	1875	1765	1657	1552	1450	1350	1250	1157	1064	9972
59	2599	2469	2343	2221	2101	1986	1873	1763	1655	1551	1449	1349	1249	1155	1061	9971
60	2596	2467	341	2218	2099	1984	1871	1761	1654	1549	1447	1347	1247	1151	1061	9960

	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
1	2881	2882	2883	2884	2885	2886	2887	2888	2889	2890	2891	2892	2893	2894	2895	2896
2	2897	2898	2899	2900	2901	2902	2903	2904	2905	2906	2907	2908	2909	2910	2911	2912
3	2913	2914	2915	2916	2917	2918	2919	2920	2921	2922	2923	2924	2925	2926	2927	2928
4	2929	2930	2931	2932	2933	2934	2935	2936	2937	2938	2939	2940	2941	2942	2943	2944
5	2945	2946	2947	2948	2949	2950	2951	2952	2953	2954	2955	2956	2957	2958	2959	2960
6	2961	2962	2963	2964	2965	2966	2967	2968	2969	2970	2971	2972	2973	2974	2975	2976
7	2977	2978	2979	2980	2981	2982	2983	2984	2985	2986	2987	2988	2989	2990	2991	2992
8	2993	2994	2995	2996	2997	2998	2999	3000	3001	3002	3003	3004	3005	3006	3007	3008
9	3009	3010	3011	3012	3013	3014	3015	3016	3017	3018	3019	3020	3021	3022	3023	3024
10	3025	3026	3027	3028	3029	3030	3031	3032	3033	3034	3035	3036	3037	3038	3039	3040
11	3041	3042	3043	3044	3045	3046	3047	3048	3049	3050	3051	3052	3053	3054	3055	3056
12	3057	3058	3059	3060	3061	3062	3063	3064	3065	3066	3067	3068	3069	3070	3071	3072
13	3073	3074	3075	3076	3077	3078	3079	3080	3081	3082	3083	3084	3085	3086	3087	3088
14	3089	3090	3091	3092	3093	3094	3095	3096	3097	3098	3099	3100	3101	3102	3103	3104
15	3105	3106	3107	3108	3109	3110	3111	3112	3113	3114	3115	3116	3117	3118	3119	3120
16	3121	3122	3123	3124	3125	3126	3127	3128	3129	3130	3131	3132	3133	3134	3135	3136
17	3137	3138	3139	3140	3141	3142	3143	3144	3145	3146	3147	3148	3149	3150	3151	3152
18	3153	3154	3155	3156	3157	3158	3159	3160	3161	3162	3163	3164	3165	3166	3167	3168
19	3169	3170	3171	3172	3173	3174	3175	3176	3177	3178	3179	3180	3181	3182	3183	3184
20	3185	3186	3187	3188	3189	3190	3191	3192	3193	3194	3195	3196	3197	3198	3199	3200
21	3201	3202	3203	3204	3205	3206	3207	3208	3209	3210	3211	3212	3213	3214	3215	3216
22	3217	3218	3219	3220	3221	3222	3223	3224	3225	3226	3227	3228	3229	3230	3231	3232
23	3233	3234	3235	3236	3237	3238	3239	3240	3241	3242	3243	3244	3245	3246	3247	3248
24	3249	3250	3251	3252	3253	3254	3255	3256	3257	3258	3259	3260	3261	3262	3263	3264
25	3265	3266	3267	3268	3269	3270	3271	3272	3273	3274	3275	3276	3277	3278	3279	3280
26	3281	3282	3283	3284	3285	3286	3287	3288	3289	3290	3291	3292	3293	3294	3295	3296
27	3297	3298	3299	3300	3301	3302	3303	3304	3305	3306	3307	3308	3309	3310	3311	3312
28	3313	3314	3315	3316	3317	3318	3319	3320	3321	3322	3323	3324	3325	3326	3327	3328
29	3329	3330	3331	3332	3333	3334	3335	3336	3337	3338	3339	3340	3341	3342	3343	3344
30	3345	3346	3347	3348	3349	3350	3351	3352	3353	3354	3355	3356	3357	3358	3359	3360
31	3361	3362	3363	3364	3365	3366	3367	3368	3369	3370	3371	3372	3373	3374	3375	3376
32	3377	3378	3379	3380	3381	3382	3383	3384	3385	3386	3387	3388	3389	3390	3391	3392
33	3393	3394	3395	3396	3397	3398	3399	3400	3401	3402	3403	3404	3405	3406	3407	3408
34	3409	3410	3411	3412	3413	3414	3415	3416	3417	3418	3419	3420	3421	3422	3423	3424
35	3425	3426	3427	3428	3429	3430	3431	3432	3433	3434	3435	3436	3437	3438	3439	3440
36	3441	3442	3443	3444	3445	3446	3447	3448	3449	3450	3451	3452	3453	3454	3455	3456
37	3457	3458	3459	3460	3461	3462	3463	3464	3465	3466	3467	3468	3469	3470	3471	3472
38	3473	3474	3475	3476	3477	3478	3479	3480	3481	3482	3483	3484	3485	3486	3487	3488
39	3489	3490	3491	3492	3493	3494	3495	3496	3497	3498	3499	3500	3501	3502	3503	3504
40	3505	3506	3507	3508	3509	3510	3511	3512	3513	3514	3515	3516	3517	3518	3519	3520
41	3521	3522	3523	3524	3525	3526	3527	3528	3529	3530	3531	3532	3533	3534	3535	3536
42	3537	3538	3539	3540	3541	3542	3543	3544	3545	3546	3547	3548	3549	3550	3551	3552
43	3553	3554	3555	3556	3557	3558	3559	3560	3561	3562	3563	3564	3565	3566	3567	3568
44	3569	3570	3571	3572	3573	3574	3575	3576	3577	3578	3579	3580	3581	3582	3583	3584
45	3585	3586	3587	3588	3589	3590	3591	3592	3593	3594	3595	3596	3597	3598	3599	3600
46	3601	3602	3603	3604	3605	3606	3607	3608	3609	3610	3611	3612	3613	3614	3615	3616
47	3617	3618	3619	3620	3621	3622	3623	3624	3625	3626	3627	3628	3629	3630	3631	3632
48	3633	3634	3635	3636	3637	3638	3639	3640	3641	3642	3643	3644	3645	3646	3647	3648
49	3649	3650	3651	3652	3653	3654	3655	3656	3657	3658	3659	3660	3661	3662	3663	3664
50	3665	3666	3667	3668	3669	3670	3671	3672	3673	3674	3675	3676	3677	3678	3679	3680
51	3681	3682	3683	3684	3685	3686	3687	3688	3689	3690	3691	3692	3693	3694	3695	3696
52	3697	3698	3699	3700	3701	3702	3703	3704	3705	3706	3707	3708	3709	3710	3711	3712
53	3713	3714	3715	3716	3717	3718	3719	3720	3721	3722	3723	3724	3725	3726	3727	3728
54	3729	3730	3731	3732	3733	3734	3735	3736	3737	3738	3739	3740	3741	3742	3743	3744
55	3745	3746	3747	3748	3749	3750	3751	3752	3753	3754	3755	3756	3757	3758	3759	3760
56	3761	3762	3763	3764	3765	3766	3767	3768	3769	3770	3771	3772	3773	3774	3775	3776
57	3777	3778	3779	3780	3781	3782	3783	3784	3785	3786	3787	3788	3789	3790	3791	3792
58	3793	3794	3795	3796	3797	3798	3799	3800	3801	3802	3803	3804	3805	3806	3807	3808
59	3809	3810	3811	3812	3813	3814	3815	3816	3817	3818	3819	3820	3821	3822	3823	3824
60	3825	3826	3827	3828	3829	3830	3831	3832	3833	3834	3835	3836	3837	3838	3839	3840
61	3841	3842	3843	3844	3845	3846	3847	3848	3849	3850	3851	3852	3853	3854	3855	3856
62	3857	3858	3859	3860	3861	3862	3863	3864	3865	3866	3867	3868	3869	3870	3871	3872
63	3873	3874	3875	3876	3877	3878	3879	3880	3881	3882	3883	3884	3885	3886	3887	3888
64	3889	3890	3891	3892	3893	3894	3895	3896	3897	3898	3899	3900	3901	3902	3903	3904
65	3905	3906	3907	3908	3909	3910	3911	3912	3913	3914	3915	3916	3917	3918	3919	3920
66	3921	3922	3923	3924	3925	3926	3927	3928	3929	3930	3931	3932	3933	3934	3935	3936
67	3937	3938	3939	3940	3941	3942	3943	3944	3945	3946	3947	3948	3949	3950	3951	3952
68	3953	3954	3955	3956	3957	3958	3959	3960	3961	3962	3963	3964	3965	3966	3967	3968
69	3969	3970	3971	3972	3973	3974	3975	3976	3977	3978	3979	3980	3981	3982	3983	3984
70	3985	3986	3987	3988	3989	3990	3991	3992	3993	3994	3995	3996	3997	3998	3999	4000

Tab 8		STIC LOGARITHMS														(217)
	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
0	840	3900	3960	1020	4080	4140	4200	4260	4320	4380	4440	4500	4560	4620	4680	4740
1	7720	7652	9586	9521	9456	9393	9331	9269	9208	9148	9089	9031	8973	8915	8857	8799
2	7719	7651	9585	9520	9455	9392	9330	9268	9207	9147	9088	9030	8972	8914	8856	8798
3	7717	7650	9584	9519	9454	9391	9328	9266	9205	9146	9087	9029	8971	8913	8855	8797
4	7716	7649	9583	9518	9453	9390	9327	9265	9204	9145	9086	9028	8970	8912	8854	8796
5	7715	7648	9582	9517	9452	9389	9326	9264	9203	9144	9085	9027	8969	8911	8853	8795
6	7714	7647	9581	9516	9451	9388	9325	9263	9202	9143	9084	9026	8968	8910	8852	8794
7	7713	7646	9580	9515	9450	9387	9324	9262	9201	9142	9083	9025	8967	8909	8851	8793
8	7712	7645	9579	9514	9449	9386	9323	9261	9200	9141	9082	9024	8966	8908	8850	8792
9	7711	7644	9578	9513	9448	9385	9322	9260	9199	9140	9081	9023	8965	8907	8849	8791
10	7710	7643	9577	9512	9447	9384	9321	9259	9198	9139	9080	9022	8964	8906	8848	8790
11	7709	7642	9576	9511	9446	9383	9320	9258	9197	9138	9079	9021	8963	8905	8847	8789
12	7708	7641	9575	9510	9445	9382	9319	9257	9196	9137	9078	9020	8962	8904	8846	8788
13	7707	7640	9574	9509	9444	9381	9318	9256	9195	9136	9077	9019	8961	8903	8845	8787
14	7706	7639	9573	9508	9443	9380	9317	9255	9194	9135	9076	9018	8960	8902	8844	8786
15	7705	7638	9572	9507	9442	9379	9316	9254	9193	9134	9075	9017	8959	8901	8843	8785
16	7704	7637	9571	9506	9441	9378	9315	9253	9192	9133	9074	9016	8958	8900	8842	8784
17	7703	7636	9570	9505	9440	9377	9314	9252	9191	9132	9073	9015	8957	8899	8841	8783
18	7702	7635	9569	9504	9439	9376	9313	9251	9190	9131	9072	9014	8956	8898	8840	8782
19	7701	7634	9568	9503	9438	9375	9312	9250	9189	9130	9071	9013	8955	8897	8839	8781
20	7700	7633	9567	9502	9437	9374	9311	9249	9188	9129	9070	9012	8954	8896	8838	8780
21	7699	7632	9566	9501	9436	9373	9310	9248	9187	9128	9069	9011	8953	8895	8837	8779
22	7698	7631	9565	9500	9435	9372	9309	9247	9186	9127	9068	9010	8952	8894	8836	8778
23	7697	7630	9564	9499	9434	9371	9308	9246	9185	9126	9067	9009	8951	8893	8835	8777
24	7696	7629	9563	9498	9433	9370	9307	9245	9184	9125	9066	9008	8950	8892	8834	8776
25	7695	7628	9562	9497	9432	9369	9306	9244	9183	9124	9065	9007	8949	8891	8833	8775
26	7694	7627	9561	9496	9431	9368	9305	9243	9182	9123	9064	9006	8948	8890	8832	8774
27	7693	7626	9560	9495	9430	9367	9304	9242	9181	9122	9063	9005	8947	8889	8831	8773
28	7692	7625	9559	9494	9429	9366	9303	9241	9180	9121	9062	9004	8946	8888	8830	8772
29	7691	7624	9558	9493	9428	9365	9302	9240	9179	9120	9061	9003	8945	8887	8829	8771
30	7690	7623	9557	9492	9427	9364	9301	9239	9178	9119	9060	9002	8944	8886	8828	8770
31	7689	7622	9556	9491	9426	9363	9300	9238	9177	9118	9059	9001	8943	8885	8827	8769
32	7688	7621	9555	9490	9425	9362	9299	9237	9176	9117	9058	9000	8942	8884	8826	8768
33	7687	7620	9554	9489	9424	9361	9298	9236	9175	9116	9057	8999	8941	8883	8825	8767
34	7686	7619	9553	9488	9423	9360	9297	9235	9174	9115	9056	8998	8940	8882	8824	8766
35	7685	7618	9552	9487	9422	9359	9296	9234	9173	9114	9055	8997	8939	8881	8823	8765
36	7684	7617	9551	9486	9421	9358	9295	9233	9172	9113	9054	8996	8938	8880	8822	8764
37	7683	7616	9550	9485	9420	9357	9294	9232	9171	9112	9053	8995	8937	8879	8821	8763
38	7682	7615	9549	9484	9419	9356	9293	9231	9170	9111	9052	8994	8936	8878	8820	8762
39	7681	7614	9548	9483	9418	9355	9292	9230	9169	9110	9051	8993	8935	8877	8819	8761
40	7680	7613	9547	9482	9417	9354	9291	9229	9168	9109	9050	8992	8934	8876	8818	8760
41	7679	7612	9546	9481	9416	9353	9290	9228	9167	9108	9049	8991	8933	8875	8817	8759
42	7678	7611	9545	9480	9415	9352	9289	9227	9166	9107	9048	8990	8932	8874	8816	8758
43	7677	7610	9544	9479	9414	9351	9288	9226	9165	9106	9047	8989	8931	8873	8815	8757
44	7676	7609	9543	9478	9413	9350	9287	9225	9164	9105	9046	8988	8930	8872	8814	8756
45	7675	7608	9542	9477	9412	9349	9286	9224	9163	9104	9045	8987	8929	8871	8813	8755
46	7674	7607	9541	9476	9411	9348	9285	9223	9162	9103	9044	8986	8928	8870	8812	8754
47	7673	7606	9540	9475	9410	9347	9284	9222	9161	9102	9043	8985	8927	8869	8811	8753
48	7672	7605	9539	9474	9409	9346	9283	9221	9160	9101	9042	8984	8926	8868	8810	8752
49	7671	7604	9538	9473	9408	9345	9282	9220	9159	9100	9041	8983	8925	8867	8809	8751
50	7670	7603	9537	9472	9407	9344	9281	9219	9158	9099	9040	8982	8924	8866	8808	8750
51	7669	7602	9536	9471	9406	9343	9280	9218	9157	9098	9039	8981	8923	8865	8807	8749
52	7668	7601	9535	9470	9405	9342	9279	9217	9156	9097	9038	8980	8922	8864	8806	8748
53	7667	7600	9534	9469	9404	9341	9278	9216	9155	9096	9037	8979	8921	8863	8805	8747
54	7666	7599	9533	9468	9403	9340	9277	9215	9154	9095	9036	8978	8920	8862	8804	8746
55	7665	7598	9532	9467	9402	9339	9276	9214	9153	9094	9035	8977	8919	8861	8803	8745
56	7664	7597	9531	9466	9401	9338	9275	9213	9152	9093	9034	8976	8918	8860	8802	8744
57	7663	7596	9530	9465	9400	9337	9274	9212	9151	9092	9033	8975	8917	8859	8801	8743
58	7662	7595	9529	9464	9399	9336	9273	9211	9150	9091	9032	8974	8916	8858	8800	8742
59	7661	7594	9528	9463	9398	9335	9272	9210	9149	9090	9031	8973	8915	8857	8799	8741
60	7660	7593	9527	9462	9397	9334	9271	9209	9148	9089	9030	8972	8914	8856	8798	8740

(218) 0 Deg		SINRS					Tab 9		
11	0'	1'	2'	3'	4'	5'	6'	7'	11
0		6 4637261	6 7647561	6 9408473	7 0657866	7 1626960	7 2418771	7 3088390	00
1	4 6855749	6 4709047	6 7683601	6 9432534	7 0675918	7 1641411	7 2430818	7 3098567	59
2	4 9866049	6 4779665	6 7719347	6 9456462	7 0693901	7 1655817	7 2442832	7 3108870	58
3	5 1626961	6 4849154	6 7754800	6 9480259	7 0711810	7 1670173	7 2454813	7 3119149	57
4	5 2876349	6 4917540	6 7789965	6 9503926	7 0729646	7 1684483	7 2466760	7 3129404	56
5	5 3815449	6 4984882	6 7824849	6 9527465	7 0747408	7 1698745	7 2478675	7 3139635	55
6	5 4637261	6 5051188	6 7859454	6 9550878	7 0765099	7 1712961	7 2490557	7 3149842	54
7	5 5306729	6 5116497	6 7893786	6 9574164	7 0782717	7 1727131	7 2502407	7 3160024	53
8	5 5866119	6 5180838	6 7927848	6 9597327	7 0800264	7 1741254	7 2514225	7 3170183	52
9	5 6398174	6 5244239	6 7961645	6 9620366	7 0817741	7 1755332	7 2526010	7 3180328	51
10	5 6855749	6 5306729	6 7995182	6 9643284	7 0835148	7 1769364	7 2537764	7 3190430	50
11	5 7269676	6 5368332	6 8028461	6 9666082	7 0852485	7 1783351	7 2549485	7 3200518	49
12	5 7647561	6 5429074	6 8061489	6 9688760	7 0869753	7 1797293	7 2561176	7 3210583	48
13	5 7995182	6 5488977	6 8093265	6 9711321	7 0886953	7 1811190	7 2572835	7 3220624	47
14	5 8317029	6 5548066	6 8126196	6 9733765	7 0904085	7 1825043	7 2584462	7 3230643	46
15	5 8616661	6 5606361	6 8159086	6 9756094	7 0921149	7 1838853	7 2596059	7 3240638	45
16	5 8896948	6 5663884	6 8191137	6 9778309	7 0938147	7 1852618	7 2607625	7 3250610	44
17	5 9160338	6 5720656	6 8222954	6 9800410	7 0955079	7 1866340	7 2619160	7 3260560	43
18	5 9408474	6 5776695	6 8254539	6 9822400	7 0971945	7 1880018	7 2630664	7 3270481	42
19	5 9643285	6 5832019	6 8285896	6 9844279	7 0988745	7 1893654	7 2642138	7 3280391	41
20	5 9866049	6 5886649	6 8317029	6 9866048	7 1005481	7 1907247	7 2653582	7 3290272	40
21	6 0077942	6 5940599	6 8347939	6 9887709	7 1022153	7 1920797	7 2664996	7 3300131	39
22	6 0279975	6 5993887	6 8378632	6 9909262	7 1038760	7 1934306	7 2676380	7 3309966	38
23	6 0473027	6 6046529	6 8409109	6 9930708	7 1055305	7 1947772	7 2687734	7 3319783	37
24	6 0657361	6 6098541	6 8439373	6 9952050	7 1071787	7 1961197	7 2699058	7 3329575	36
25	6 08335149	6 6149938	6 8469428	6 9973287	7 1088206	7 1974580	7 2710353	7 3339345	35
26	6 1005482	6 6200733	6 8499277	6 9994420	7 1104564	7 1987923	7 2721619	7 3349094	34
27	6 1169386	6 6250941	6 8528922	7 0015451	7 1120860	7 1999124	7 2732856	7 3358821	33
28	6 1327329	6 6300575	6 8558365	7 0036381	7 1137095	7 2010448	7 2744063	7 3368525	32
29	6 1479729	6 6349649	6 8587611	7 0057211	7 1153270	7 2021706	7 2755242	7 3378209	31
30	6 1626961	6 6398174	6 8616661	7 0077941	7 1169385	7 2032986	7 2766392	7 3387870	30
31	6 1769366	6 6446162	6 8645518	7 0098572	7 1185440	7 2054027	7 2777514	7 3397511	29
32	6 1907248	6 6493627	6 8674184	7 0119107	7 1201436	7 20667128	7 2788607	7 3407130	28
33	6 2040888	6 6540578	6 8702663	7 0139544	7 1217374	7 2080189	7 2799671	7 3416727	27
34	6 2170538	6 6587027	6 8730955	7 0159886	7 1233253	7 2093211	7 2810708	7 3426304	26
35	6 2296429	6 6633985	6 8759065	7 0180131	7 1249074	7 2106195	7 2821717	7 3435859	25
36	6 2418774	6 6678461	6 8786994	7 0200285	7 1264838	7 2119140	7 2832698	7 3445394	24
37	6 2537766	6 6723466	6 8814745	7 0220345	7 1280545	7 2132046	7 2843651	7 3454907	23
38	6 2653585	6 6768009	6 8842319	7 0240313	7 1296195	7 2144914	7 2854577	7 3464400	22
39	6 2766395	6 6812100	6 8869719	7 0260189	7 1311789	7 2157744	7 2865475	7 3473872	21
40	6 2876349	6 6855748	6 8896948	7 0279975	7 1327328	7 2170536	7 2876346	7 3483323	20
41	6 2983587	6 6898962	6 8924007	7 0299671	7 1342811	7 2183290	7 2887190	7 3492754	19
42	6 3088242	6 6941750	6 8950898	7 0319278	7 1358238	7 2196008	7 2898006	7 3502165	18
43	6 3190433	6 6984121	6 8977624	7 0338796	7 1373612	7 2208688	7 2908796	7 3511555	17
44	6 3290275	6 7026082	6 9004187	7 0358228	7 1388931	7 2221331	7 2919560	7 3520925	16
45	6 3387874	6 7067641	6 9030588	7 0377573	7 1404196	7 2233938	7 2930296	7 3530275	15
46	6 3483327	6 7108807	6 9056829	7 0396832	7 1419408	7 2246508	7 2941006	7 3539604	14
47	6 3576727	6 7149560	6 9082913	7 0416006	7 1434566	7 2259041	7 2951690	7 3548914	13
48	6 3668161	6 7189986	6 9108841	7 0435096	7 1449672	7 2271539	7 2962347	7 3558203	12
49	6 3757709	6 7230013	6 9134615	7 0454103	7 1464726	7 2284001	7 2972979	7 3567473	11
50	6 3845449	6 7269675	6 9160207	7 0473026	7 1479727	7 2296427	7 2983584	7 3576723	10
51	6 3931450	6 7308978	6 9185709	7 0491868	7 1494677	7 2308818	7 2994164	7 3585954	9
52	6 4015782	6 7347929	6 9211033	7 0510628	7 1509576	7 2321173	7 3004718	7 3595165	8
53	6 4098501	6 7386533	6 9236209	7 0529307	7 1524423	7 2333494	7 3015246	7 3604356	7
54	6 4179686	6 7424707	6 9261241	7 0547906	7 1539221	7 2345779	7 3025749	7 3613528	6
55	6 4259376	6 7462727	6 9286129	7 0566426	7 1553967	7 2358030	7 3036227	7 3622681	5
56	6 4337629	6 7500328	6 9310875	7 0584868	7 1568664	7 2370246	7 3046679	7 3631814	4
57	6 4414197	6 7537607	6 9335481	7 0603231	7 1583312	7 2382429	7 3057106	7 3640929	3
58	6 4490029	6 7574569	6 9359948	7 0621517	7 1597910	7 2394577	7 3067509	7 3650024	2
59	6 4564269	6 7611218	6 9384278	7 0639727	7 1612459	7 2406691	7 3077886	7 3659100	1
60	6 4637261	6 7647561	6 9408473	7 0657866	7 1626960	7 2418771	7 3088390	7 3668157	0
71	59'	58'	57'	56'	55'	54'	53'	52'	71

COSINES.

89 Deg.

o Deg		TANGENTS								(219)
11	0'	1'	2'	3'	4'	5'	6'	7'	8'	
0		4637261	67047562	69408475	70657863	7166964	72418778	73088248	5c	
1	6855749	4709047	67683603	69432536	7067591	71641417	72430825	7309857		
2	9866049	4779666	6771934	69456164	70693904	71655821	7244839	73108876		
3	1626961	4849154	67754800	6948061	70711813	71670178	72454819	73119158		
4	2876349	4917549	67789966	69503928	70730649	71684488	72466767	73129413	56	
5	3845449	498488	6782481	6952746	70747412	71698750	72478682	73139644	5c	
6	4637261	5051188	67859455	69550879	70765102	71712966	72490564	73149851	54	
7	5306729	5116417	67893786	69574166	7078270	7177136	7250414	73160034	53	
8	5886649	5180838	67927849	69597328	7080068	7141259	72514231	73170193	5	
9	6398174	5244210	67961646	69620368	70817714	7155337	72525611	73180328	51	
10	6855749	5306729	67995183	69643286	70835151	7169369	72537771	73190446	5	
11	7269676	5368332	68028462	69666084	70852488	71783356	72549492	73200528	49	
12	7647561	542904	68061489	6968876	70869756	7179798	72561183	73210592	48	
13	7995182	5488977	68094266	69711323	70886956	71811195	72572842	73220634	47	
14	8317029	5548066	68126797	69733767	70904088	71825019	72584469	73230652	46	
15	8616661	5606361	68159087	69756096	70921153	71838858	72596066	73240648	45	
16	8896948	5663885	68191138	69778311	70938151	71852623	72607632	73250620	44	
17	9160238	5720656	68222955	69800412	70955082	71866345	72619167	73260570	43	
18	9408474	5776695	68254540	69822402	70971948	71880023	72630672	73270496	42	
19	9643285	5832020	68285897	69844281	70988749	71893659	72642146	73280406	41	
20	9866049	5886649	68317030	69866050	71005484	71907252	72653590	73290321	40	
21	1007942	5940599	68347940	69887711	71022156	71920802	72665003	73300141	39	
22	10279975	5993887	68378633	69909264	71038764	71934311	72676387	73309978	38	
23	10473027	6046530	68409110	69930710	71055309	71947777	72687741	73319793	37	
24	10657861	6098542	68439374	69952052	71071790	7196120	72699060	73329585	36	
25	10835149	6149938	68469429	69973289	71088210	71974586	72710361	73339356	35	
26	1100548	6200733	68499278	6999442	71104567	71987928	72721627	73349104	34	
27	11169386	6250941	68528923	70015151	71120864	72001230	72732863	73358831	33	
28	11327329	6300570	6855836	70036383	71137099	72014491	72744071	73368536	32	
29	11479729	6349649	68587612	70057113	71153274	72027711	7275550	73378219	31	
30	1166961	6398174	68616662	70077943	71169389	72040892	72766400	73387881	30	
31	11769366	6446163	68645519	70098575	71185444	72054032	72777521	73397521	29	
32	11907248	6493627	68674185	70119109	71201440	72067133	72788615	73407140	28	
33	12040888	6540578	68702664	70139516	71217378	72080195	72799679	73416738	27	
34	1216538	6587027	68730959	70159888	71233257	72093217	72810716	73426314	26	
35	12296429	6633983	68759066	70180135	71249078	72106201	7282175	73435870	25	
36	124218774	66808461	68786995	70200288	71264842	72119145	72832706	73445401	24	
37	12537766	67273466	68814746	70220318	71280549	72132052	72843659	73454918	23	
38	12653585	67738010	68842320	70240315	71296199	72144920	72854585	73464411	22	
39	12769395	68202101	68869721	70260291	71311793	72157759	72865483	73473883	21	
40	12885149	68665719	68896949	70280247	71327332	72170542	72876354	73483334	20	
41	129983587	69128963	68924008	70300177	71342815	72183296	72887198	73492765	19	
42	13082242	69591721	68950900	70319280	71358242	72196014	72898015	73502176	18	
43	13190433	6994121	68977626	70338799	71373616	72208694	72908805	73511566	17	
44	1329075	7026082	69004188	70358231	71388935	72221337	72919568	73520936	16	
45	13387874	7067642	69030589	70377576	71404200	72233944	72930304	73530286	15	
46	13483327	7108808	69056835	70396835	71419412	72246514	72941015	73539615	14	
47	13576727	7149587	69082914	70416009	71434570	72259048	72951698	73548925	13	
48	13668161	7189987	69108841	70435099	71449676	72271545	72962356	73558215	12	
49	13757709	7230014	69134617	70454105	71464730	72284007	72972987	73567485	11	
50	13845449	7269676	69160239	70473029	71479732	72296433	72983591	73576735	10	
51	13931450	7308979	69185711	70491870	71494681	72308824	72994173	73585965	9	
52	14015782	7347929	69211034	70510630	71509580	72321180	73004727	73595176	8	
53	14098507	7386534	69236211	70529310	71524428	72333350	73015255	73604368	7	
54	14179686	7424798	69261242	70547999	71539225	72345780	73025758	73613540	6	
55	14259376	7462728	69286130	70566429	71553971	72358036	73036235	73622692	5	
56	14337629	7500329	69310876	70584871	71568669	72370253	73046688	73631826	4	
57	14414497	7537604	69335482	70603231	71583316	72382435	73057115	73640940	3	
58	14490029	7574570	69359950	70621520	71597914	72394583	73067517	73650035	2	
59	14564269	7611219	69384280	70639730	71612464	72406698	73077895	73659112	1	
60	14637261	7647562	69408475	70657863	71626964	72418778	73088248	73668160	0	
11	59'	58'	57'	56'	55'	54'	53'	52'	51'	

COTANGENTS.

Le 2 89 Deg

(220)		o Deg		SINES				Tab 9			
11	8'	9'	10'	11'	12'	13'	14'	15'	16'		
0	366815	7 4179681	7 4637255	7 5051181	7 5429065	7 5776684	7 6098530	7 6398160	60		
1	3677195	7 4187716	7 4644461	7 5057756	7 5435092	7 5782249	7 6103697	7 6402983	59		
2	3686215	7 4195737	7 4651707	7 5064321	7 5441112	7 5787806	7 6108851	7 6407800	58		
3	3695211	7 4203747	7 4658916	7 5070876	7 5447123	7 5793356	7 6114012	7 6412612	57		
4	3704198	7 4211733	7 4666112	7 5077422	7 5453125	7 5798899	7 6119161	7 6417419	56		
5	3713162	7 4219709	7 4673296	7 5083958	7 5459120	7 5804435	7 6124314	7 6422221	55		
6	3722101	7 4227670	7 4680469	7 5090483	7 5465106	7 5809964	7 6129440	7 6427017	54		
7	3731034	7 4235617	7 4687629	7 5096999	7 5471084	7 5815485	7 6134571	7 6431808	53		
8	3739943	7 4243549	7 4694778	7 5103506	7 5477053	7 5821000	7 6139695	7 6436593	52		
9	3748832	7 4251467	7 4701915	7 5110002	7 5483015	7 5826508	7 6144813	7 6441373	51		
10	3757700	7 4259370	7 4709041	7 5116489	7 5488968	7 5832009	7 6149926	7 6446149	50		
11	3766550	7 4267259	7 4716154	7 5122966	7 5494913	7 5837503	7 6155032	7 6450918	49		
12	3775391	7 4275134	7 4723257	7 5129434	7 5500850	7 5842990	7 6160132	7 6455683	48		
13	3784214	7 4282995	7 4730347	7 5135892	7 5506779	7 5848470	7 6165227	7 6460442	47		
14	3793014	7 4290841	7 4737426	7 5142340	7 5512700	7 5853943	7 6170315	7 6465196	46		
15	3801796	7 4298673	7 4744493	7 5148779	7 5518613	7 5859409	7 6175397	7 6469945	45		
16	3810561	7 4306491	7 4751549	7 5155208	7 5524518	7 5864869	7 6180474	7 6474689	44		
17	3819308	7 4314295	7 4758594	7 5161628	7 5530414	7 5870321	7 6185544	7 6479428	43		
18	3828038	7 4322085	7 4765627	7 5168038	7 5536303	7 5875767	7 6190609	7 6484161	42		
19	3836750	7 4329861	7 4772649	7 5174439	7 5542184	7 5881106	7 6195668	7 6488889	41		
20	3845444	7 4337624	7 4779659	7 5180830	7 5548057	7 5886638	7 6200721	7 6493613	40		
21	3854112	7 4345372	7 4786658	7 5187212	7 5553921	7 5892063	7 6205768	7 6498331	39		
22	3862782	7 4353106	7 4793646	7 5193585	7 5559778	7 5897481	7 6210809	7 6503043	38		
23	3871424	7 4360827	7 4800623	7 5199948	7 5565627	7 5902893	7 6215844	7 6507751	37		
24	3880050	7 4368534	7 4807588	7 5206302	7 5571469	7 5908298	7 6220873	7 6512454	36		
25	3888658	7 4376228	7 4814543	7 5212646	7 5577302	7 5913696	7 6225897	7 6517151	35		
26	3897249	7 4383908	7 4821485	7 5218982	7 5583127	7 5919088	7 6230915	7 6521844	34		
27	3905824	7 4391574	7 4828417	7 5225308	7 5588945	7 5924473	7 6235927	7 6526531	33		
28	3914381	7 4399227	7 4835338	7 5231625	7 5594755	7 5929851	7 6240933	7 6531214	32		
29	3922922	7 4406866	7 4842248	7 5237933	7 5600557	7 5935223	7 6245934	7 6535891	31		
30	3931446	7 4414492	7 4849147	7 5244231	7 5606352	7 5940588	7 6250928	7 6540563	30		
31	3939953	7 4422104	7 4856035	7 5250521	7 5612138	7 5945946	7 6255917	7 6545231	29		
32	3948444	7 4429703	7 4862913	7 5256801	7 5617917	7 5951298	7 6260901	7 6549893	28		
33	3956918	7 4437289	7 4869779	7 5263073	7 5623689	7 5956643	7 6265878	7 6554550	27		
34	3965375	7 4444862	7 4876634	7 5269335	7 5629452	7 5961981	7 6270850	7 6559203	26		
35	3973816	7 4452411	7 4883479	7 5275588	7 5635208	7 5967313	7 6275816	7 6563850	25		
36	3982241	7 4459968	7 4890313	7 5281833	7 5640957	7 5972639	7 6280777	7 6568492	24		
37	3990650	7 4467501	7 4897136	7 5288068	7 5646698	7 5977958	7 6285732	7 6573130	23		
38	3999042	7 4475021	7 4903949	7 5294295	7 5652431	7 5983270	7 6290681	7 6577762	22		
39	4007418	7 4482520	7 4910750	7 5300512	7 5658157	7 5988576	7 6295624	7 6582390	21		
40	4015778	7 4490023	7 4917541	7 5306721	7 5663875	7 5993876	7 6300562	7 6587014	20		
41	4024121	7 4497504	7 4924322	7 5312920	7 5669585	7 5999169	7 6305495	7 6591631	19		
42	4032449	7 4504973	7 4931092	7 5319111	7 5675289	7 6004455	7 6310421	7 6596243	18		
43	4040761	7 4512428	7 4937851	7 5325294	7 5680984	7 6009735	7 6315342	7 6600850	17		
44	4049057	7 4519871	7 4944600	7 5331467	7 5686672	7 6015009	7 6320258	7 6605453	16		
45	4057337	7 4527302	7 4951339	7 5337631	7 5692353	7 6020277	7 6325168	7 6610052	15		
46	4065601	7 4534719	7 4958067	7 5343787	7 5698026	7 6025538	7 6330073	7 6614645	14		
47	4073850	7 4542124	7 4964784	7 5349934	7 5703692	7 6030792	7 6334971	7 6619233	13		
48	4082083	7 4549516	7 4971492	7 5356073	7 5709351	7 6036040	7 6339865	7 6623811	12		
49	4090301	7 4556896	7 4978188	7 5362202	7 5715002	7 6041282	7 6344753	7 6628395	11		
50	4098503	7 4564263	7 4984875	7 5368324	7 5720646	7 6046518	7 6349635	7 6632969	10		
51	4106689	7 4571618	7 4991551	7 5374436	7 5726282	7 6051747	7 6354512	7 6637538	9		
52	4114860	7 4578960	7 4998217	7 5380540	7 5731912	7 6056970	7 6359384	7 6642103	8		
53	4123016	7 4586290	7 5004873	7 5386635	7 5737533	7 6062187	7 6364250	7 6646662	7		
54	4131156	7 4593607	7 5011519	7 5392722	7 5743148	7 6067397	7 6369110	7 6651217	6		
55	4139282	7 4600912	7 5018154	7 5398800	7 5748755	7 6072602	7 6373965	7 6655767	5		
56	4147392	7 4608205	7 5024780	7 5404870	7 5754356	7 6077800	7 6378815	7 6660312	4		
57	4155487	7 4615486	7 5031395	7 5410931	7 5759949	7 6082991	7 6383659	7 6664852	3		
58	4163566	7 4622754	7 5038000	7 5416984	7 5765534	7 6088177	7 6388498	7 6669388	2		
59	4171631	7 4630011	7 5044595	7 5423029	7 5771113	7 6093356	7 6393332	7 6673919	1		
60	4179681	7 4637255	7 5051181	7 5429065	7 5776684	7 6098530	7 6398160	7 6678443	0		
11	51'	50'	49'	48'	47'	46'	45'	44'	11		
COSINES											
89 Deg											

o Deg		1 ANGENTS										(221)	
11	8'	9'	10'	11'	12'	13'	14'	15'	16'	17'	18'	19'	
0	3668169	74179696	74637273	75051203	75429091	75776715	76098560	76398201	76684016	76964996	77240141	77504456	
1	367720	74187731	74644506	75057778	75435119	75782280	76103733	76403024	76687984	76967016	77240141	77504456	
2	36862	74195752	74651726	75064343	75441138	75818337	76120384	76418651	76705984	76982496	77258176	77522921	
3	369528	74203751	74658934	75070899	75447149	75825387	76132409	76429751	76716196	76992816	77268301	77532956	
4	3704210	74211748	74666130	75077444	75453151	75831930	76138410	76435751	76722196	76998816	77278401	77542956	
5	3713174	7421974	74673315	75083980	7545914	75838930	76144410	76441751	76728196	76999816	77284401	77548956	
6	3722119	74227685	74680481	75090506	75465133	75845935	76150410	76448751	76734196	77005816	77290401	77554956	
7	3731011	74235632	74687648	75097022	75471111	75852937	76156410	76455751	76740196	77011816	77296401	77560956	
8	3739955	74243564	74694797	7510358	75477080	75859937	76162410	76462751	76746196	77017816	77302401	77566956	
9	3748845	74251482	74701934	7511005	75483042	75866937	76168410	76469751	76752196	77023816	77308401	77572956	
10	3757718	74259386	74709060	7511651	75488995	75873937	76174410	76476751	76758196	77029816	77314401	77578956	
11	3766572	74267275	74716173	75122989	75494941	75880937	76180410	76483751	76764196	77035816	77320401	77584956	
12	3775408	74275150	74723271	75129457	75500878	75887937	76186410	76490751	76770196	77041816	77326401	77590956	
13	378426	74283010	74730366	75135915	75506807	75894937	76192410	76497751	76776196	77047816	77332401	77596956	
14	3793026	74290857	74737445	75142363	75512728	75901937	76198410	76504751	76782196	77053816	77338401	77602956	
15	3801809	74298689	74744513	75148802	75518640	75908937	76204410	76511751	76788196	77059816	77344401	77608956	
16	3810574	74306507	74751569	75155231	75524545	75915937	76210410	76518751	76794196	77065816	77350401	77614956	
17	3819321	74314311	74758613	75161651	75530444	75922937	76216410	76525751	76800196	77071816	77356401	77620956	
18	3828051	74322101	74765646	75168061	75536331	75929937	76222410	76532751	76806196	77077816	77362401	77626956	
19	3836763	74329871	74772668	7517446	75542312	75936937	76228410	76539751	76812196	77083816	77368401	77632956	
20	3845457	74337640	74779679	75180854	75548284	75943937	76234410	76546751	76818196	77089816	77374401	77638956	
21	3854134	74345388	74786678	75187236	75554249	75950937	76240410	76553751	76824196	77095816	77380401	77644956	
22	3862794	74353123	74793666	75193606	75559806	75957937	76246410	76560751	76830196	77101816	77386401	77650956	
23	3871437	74360843	7480064	7519997	75565656	75964937	76252410	76567751	76836196	77107816	77392401	77656956	
24	3880063	74368551	74807608	75206326	7557149	75971937	76258410	76574751	76842196	77113816	77398401	77662956	
25	3888671	74376214	74814562	75212670	75577330	75978370	76264410	76581751	76848196	77119816	77404401	77668956	
26	3897263	7438394	74821505	75219006	75583156	75985312	76270410	76589751	76854196	77125816	77410401	77674956	
27	3905837	74391590	74828431	75225332	75588974	75992254	76276410	76597751	76860196	77131816	77416401	77680956	
28	3914395	74399243	74835359	75231649	75594781	75999196	76282410	76605751	76866196	77137816	77422401	77686956	
29	3922935	7440688	74842269	75237951	75600586	76006138	76288410	76613751	76872196	77143816	77428401	77692956	
30	3931459	74414508	74849168	75244256	7560638	76013080	76294410	76621751	76878196	77149816	77434401	77698956	
31	393996	74422121	74856056	75250545	75612167	76019922	76300410	76629751	76884196	77155816	77440401	77704956	
32	3948457	74429720	74862933	75256826	75617946	76026764	76306410	76637751	76890196	77161816	77446401	77710956	
33	3956931	74437306	74869799	75263097	75623718	76033616	76312410	76645751	76896196	77167816	77452401	77716956	
34	3965389	74444879	74876655	75269360	75629481	76040368	76318410	76653751	76902196	77173816	77458401	77722956	
35	3973836	74452438	74883500	75275613	75635238	76047120	76324410	76661751	76908196	77179816	77464401	77728956	
36	3982255	74459988	74890334	75281858	75640986	76053872	76330410	76669751	76914196	77185816	77470401	77734956	
37	3990663	74467518	74897157	75288093	75646727	76060624	76336410	76677751	76920196	77191816	77476401	77740956	
38	3999055	74475038	74903969	75294319	75652460	76067376	76342410	76685751	76926196	77197816	77482401	77746956	
39	4007431	74482546	74910771	75300537	75658186	76074128	76348410	76693751	76932196	77203816	77488401	77752956	
40	4015791	74490040	74917562	75306746	75663904	76080880	76354410	76701751	76938196	77209816	77494401	77758956	
41	4024135	74497521	74924343	75312946	75669615	76087632	76360410	76709751	76944196	77215816	77500401	77764956	
42	4032463	74504990	74931113	75319137	75675318	76094384	76366410	76717751	76950196	77221816	77506401	77770956	
43	4040775	74512446	7493782	75325319	75681014	76101136	76372410	76725751	76956196	77227816	77512401	77776956	
44	4049071	74519889	74944621	75331492	75686702	76107888	76378410	76733751	76962196	77233816	77518401	77782956	
45	4057351	74527319	74951360	75337657	75692383	76114640	76384410	76741751	76968196	77239816	77524401	77788956	
46	4065616	74534737	74958088	75343813	75698056	76121392	76390410	76750751	76974196	77245816	77530401	77794956	
47	4073864	74542141	74964806	75349960	75703722	76128144	76396410	76758751	76980196	77251816	77536401	77800956	
48	4082097	74549534	74971513	75356098	75709381	76134896	76402410	76766751	76986196	77257816	77542401	77806956	
49	4090318	74556913	74978210	75362228	75715032	76141648	76408410	76774751	76992196	77263816	77548401	77812956	
50	4098517	74564281	74984897	75368349	75720676	76148400	76414410	76782751	77000196	77269816	77554401	77818956	
51	4106703	74571635	74991573	75374462	75726313	76155152	76420410	76790751	77006196	77275816	77560401	77824956	
52	4114875	74578978	74998239	75380566	75731942	76161904	76426410	76798751	77012196	77281816	77566401	77830956	
53	4123030	74586308	75004895	75386661	75737564	76168656	76432410	76806751	77018196	77287816	77572401	77836956	
54	4131171	74593623	75011541	75392748	75743179	76175408	76438410	76814751	77024196	77293816	77578401	77842956	
55	4139296	74600930	75018176	75398826	75748786	76182160	76444410	76822751	77030196	77299816	77584401	77848956	
56	4147406	74608223	75024802	75404896	75754386	76188912	76450410	76830751	77036196	77305816	77590401	77854956	
57	4155501	74615504	75031417	75410958	75759979	76195664	76456410	76838751	77042196	77311816	77596401	77860956	
58	4163581	74622773	75038022	75417011	75765565	76202416	76462410	76846751	77048196	77317816	77602401	77866956	
59	4171646	74630030	75044618	75423055	75771144	76209168	76468410	76854751	77054196	77323816	77608401	77872956	
60	4179696	74637273	75051203	75429091	75776715	76215920	76474410	76862751	77060196	77329816	77614401	77878956	
11	51'	50'	49'	48'	47'	46'	45'	44'	11				
COTANGENTS.													
89 Deg													

(222) 0 Deg		SINES.							Tab 9
	16'	17'	18'	19'	20'	21'	22'	23'	
C	7 0678445	7 6941733	7 7189966	7 7424775	7 7647537	7 7859427	7 8061458	7 8254507	6
1	7 6682967	7 6945988	7 7193986	7 7428585	7 7651154	7 7862872	7 8064741	7 8257653	5
2	7 6687484	7 6950240	7 7198001	7 7432386	7 7654769	7 7866315	7 8068033	7 8260797	4
3	7 6691996	7 6954487	7 7202013	7 7436189	7 7658380	7 7869755	7 8071317	7 8263938	3
4	7 6696503	7 6958735	7 7206021	7 7439987	7 7661989	7 7873192	7 8074590	7 8267077	2
5	7 6701006	7 6962969	7 7210026	7 7443781	7 7665594	7 7876621	7 8077878	7 8270214	1
6	7 6705504	7 6967204	7 7214027	7 7447573	7 7669197	7 7880058	7 8081154	7 8273318	0
7	7 6709998	7 6971435	7 7218024	7 7451360	7 7672797	7 7883488	7 8084428	7 8276431	9
8	7 6714486	7 6975662	7 7222017	7 7455145	7 7676393	7 7886914	7 8087699	7 8279611	8
9	7 6718970	7 6979884	7 7226007	7 7458926	7 7679987	7 7890337	7 8090968	7 8282738	7
10	7 6723450	7 6984103	7 7229993	7 7462705	7 7683577	7 7893758	7 8094235	7 8285861	6
11	7 6727925	7 6988311	7 7233976	7 7466479	7 7687165	7 7897177	7 8097499	7 8288987	5
12	7 6732395	7 6992528	7 7237955	7 7470251	7 7690750	7 7900592	7 8100761	7 8292114	4
13	7 6736861	7 6996734	7 7241930	7 7474019	7 7694332	7 7904005	7 8104020	7 8295222	3
14	7 6741322	7 7000936	7 7245902	7 7477784	7 7697910	7 7907415	7 8107277	7 8298343	2
15	7 6745779	7 7005134	7 7249869	7 7481546	7 7701486	7 7910823	7 8110531	7 8301458	1
16	7 6750231	7 7009328	7 7253834	7 7485304	7 7705059	7 7914228	7 8113783	7 8304570	0
17	7 6754678	7 7013518	7 7257794	7 7489059	7 7708629	7 7917630	7 8117032	7 8307680	9
18	7 6759121	7 7017704	7 7261752	7 7492811	7 7712196	7 7921029	7 8120279	7 8310787	8
19	7 6763559	7 7021886	7 7265705	7 7496560	7 7715760	7 7924426	7 8123524	7 8313893	7
20	7 6767993	7 7026064	7 7269655	7 7500306	7 7719322	7 7927820	7 8126766	7 8316996	6
21	7 6772422	7 7030238	7 7273601	7 7504048	7 7722880	7 7931212	7 8130006	7 8320097	5
22	7 6776847	7 7034401	7 7277544	7 7507787	7 7726435	7 7934601	7 8133243	7 8323195	4
23	7 6781267	7 7038573	7 7281483	7 7511523	7 7729988	7 7937987	7 8136478	7 8326292	3
24	7 6785683	7 7042735	7 7285419	7 7515255	7 7733537	7 7941371	7 8139711	7 8329386	2
25	7 6790094	7 7046893	7 7289351	7 7518985	7 7737084	7 7944752	7 8142941	7 8332478	1
26	7 6794501	7 7051047	7 7293279	7 7522711	7 7740628	7 7948130	7 8146168	7 8335568	0
27	7 6798904	7 7055197	7 7297204	7 7526434	7 7744169	7 7951506	7 8149394	7 8338656	9
28	7 6803302	7 7059343	7 7301125	7 7530164	7 7747707	7 7954879	7 8152617	7 8341741	8
29	7 6807695	7 7063485	7 7305043	7 7533871	7 7751242	7 7958250	7 8155837	7 8344825	7
30	7 6812084	7 7067623	7 7308957	7 7537584	7 7754774	7 7961617	7 8159055	7 8347906	6
31	7 6816469	7 7071757	7 7312868	7 7541294	7 7758303	7 7964983	7 8162271	7 8350985	5
32	7 6820843	7 7075887	7 7316776	7 7545001	7 7761830	7 7968345	7 8165484	7 8354062	4
33	7 6825224	7 7080014	7 7320679	7 7548705	7 7765354	7 7971705	7 8168695	7 8357136	3
34	7 6829596	7 7084136	7 7324579	7 7552406	7 7768874	7 7975063	7 8171904	7 8360209	2
35	7 6833963	7 7088254	7 7328476	7 7556104	7 7772392	7 7978418	7 8175110	7 8363279	1
36	7 6838325	7 7092361	7 7332369	7 7559798	7 7775907	7 7981770	7 8178314	7 8366347	0
37	7 6842683	7 7096480	7 7336259	7 7563490	7 7779420	7 7985120	7 8181516	7 8369413	9
38	7 6847037	7 7100586	7 7340145	7 7567178	7 7782929	7 7988467	7 8184715	7 8372477	8
39	7 6851387	7 7104689	7 7344028	7 7570863	7 7786436	7 7991811	7 8187912	7 8375538	7
40	7 6855732	7 7108788	7 7347908	7 7574545	7 7789939	7 7995153	7 8191106	7 8378598	6
41	7 6860072	7 7112883	7 7351783	7 7578224	7 7793440	7 7998493	7 8194298	7 8381655	5
42	7 6864409	7 7116975	7 7355656	7 7581900	7 7796938	7 8001830	7 8197488	7 8384710	4
43	7 6868741	7 7121062	7 7359525	7 7585574	7 7800434	7 8005164	7 8200676	7 8387763	3
44	7 6873069	7 7125146	7 7363396	7 7589242	7 7803926	7 8008496	7 8203861	7 8390814	2
45	7 6877392	7 7129225	7 7367252	7 7592908	7 7807416	7 8011825	7 8207043	7 8393863	1
46	7 6881711	7 7133301	7 7371111	7 7596572	7 7810903	7 8015151	7 8210224	7 8396909	0
47	7 6886026	7 7137373	7 7374966	7 7600232	7 7814489	7 8018475	7 8213402	7 8399954	9
48	7 6890337	7 7141442	7 7378818	7 7603889	7 7817868	7 8021797	7 8216578	7 8402996	8
49	7 6894643	7 7145506	7 7382666	7 7607543	7 7821347	7 8025116	7 8219751	7 8406036	7
50	7 6898945	7 7149567	7 7386511	7 7611194	7 7824822	7 8028432	7 8222922	7 8409074	6
51	7 6903243	7 7153624	7 7390353	7 7614842	7 7828295	7 8031746	7 8226091	7 8412110	5
52	7 6907536	7 7157677	7 7394191	7 7618487	7 7831765	7 8035058	7 8229258	7 8415144	4
53	7 6911826	7 7161726	7 7398026	7 7622129	7 7835233	7 8038367	7 8232422	7 8418176	3
54	7 6916111	7 7165772	7 7401857	7 7625768	7 7838697	7 8041673	7 8235584	7 8421205	2
55	7 6920392	7 7169814	7 7405685	7 7629403	7 7842159	7 8044977	7 8238743	7 8424233	1
56	7 6924668	7 7173852	7 7409510	7 7633036	7 7845618	7 8048278	7 8241901	7 8427258	0
57	7 6928941	7 7177880	7 7413331	7 7636666	7 7849075	7 8051577	7 8245056	7 8430281	9
58	7 6933209	7 7181907	7 7417149	7 7640292	7 7852528	7 8054873	7 8248209	7 8433302	8
59	7 6937473	7 7185942	7 7420964	7 7643916	7 7855979	7 8058167	7 8251359	7 8436321	7
60	7 6941733	7 7189966	7 7424775	7 7647537	7 7859427	7 8061458	7 8254507	7 8439338	6
71	43'	42'	41'	40'	39'	38'	37'	36'	77

COSINES.

89 Deg.

5 Deg		LANGENTS								(223)
11	16'	17'	18'	19'	20'	21'	22'	23'	11	
0	7 66,8492	7 6941786	7 7190026	7 74 4841	7 764,610	7 7859508	7 8061547	7 8254604	00	
1	7 6683014	7 6946042	7 7194045	7 74 8649	7 7651228	7 7862954	7 8064836	7 8257750	59	
2	7 6687531	7 6950293	7 7198061	7 7432454	7 7654843	7 7866396	7 8068123	7 8260814	58	
3	7 6692043	7 6954511	7 720 073	7 7436255	7 7658454	7 7869836	7 8071401	7 8264036	57	
4	7 6696551	7 6958784	7 7206081	7 7440053	7 766 063	7 7873274	7 8074688	7 8267175	56	
5	7 6701053	7 6963023	7 7210086	7 7443848	7 7665669	7 7876708	7 8077967	7 8270312	55	
6	7 6705552	7 6967258	7 7214087	7 7447640	7 7669271	7 7880140	7 8081244	7 8273446	54	
7	7 6710045	7 6971489	7 7218084	7 7451428	7 7672871	7 7883560	7 8084518	7 8276579	53	
8	7 6714534	7 6975716	7 7222078	7 7455212	7 7676468	7 7886996	7 8087789	7 8279701	52	
9	7 6719018	7 6979938	7 7226068	7 7458994	7 7680061	7 7890420	7 8091059	7 8282837	51	
10	7 6723498	7 6984157	7 7230054	7 7462772	7 7683652	7 7893841	7 8094325	7 8285962	50	
11	7 6727973	7 6988371	7 7234037	7 7466547	7 7687240	7 7897259	7 8097590	7 8289086	49	
12	7 6732443	7 6992582	7 7238016	7 7470319	7 7690825	7 7900675	7 8100851	7 8292201	48	
13	7 6736909	7 6996788	7 7241991	7 7474087	7 7694407	7 7904088	7 8104111	7 8295326	47	
14	7 6741371	7 7000990	7 7245963	7 7477852	7 7697986	7 7907498	7 8107368	7 8298443	46	
15	7 674582	7 7005189	7 7249931	7 7481614	7 7701562	7 7910906	7 8110622	7 8301557	45	
16	7 6750279	7 7009383	7 7253895	7 7485372	7 7705135	7 7914311	7 8113874	7 8304669	44	
17	7 6754727	7 7013573	7 7257856	7 7489128	7 7708705	7 7917713	7 8117124	7 8307779	43	
18	7 6759176	7 7017 59	7 7261813	7 7492880	7 7712272	7 7921113	7 8120371	7 8310887	42	
19	7 6763608	7 7021941	7 7265761	7 7496629	7 7715836	7 7924519	7 8123615	7 8313992	41	
20	7 6768042	7 7026119	7 7269717	7 7500374	7 7719398	7 7927904	7 8126858	7 8317096	40	
21	7 6772471	7 7030293	7 7273663	7 7504117	7 7722956	7 7931290	7 8130098	7 8320197	39	
22	7 6776896	7 7034463	7 7277606	7 7507856	7 7726512	7 7934685	7 8133335	7 8323296	38	
23	7 6781311	7 7038629	7 7281545	7 7511592	7 7730064	7 7938071	7 8136570	7 8326392	37	
24	7 6785733	7 7042791	7 7285481	7 7515325	7 7733614	7 7941455	7 8139803	7 8329487	36	
25	7 6790144	7 7046949	7 7289413	7 7519054	7 7737161	7 7944836	7 8143033	7 8332579	35	
26	7 6794551	7 7051103	7 7293342	7 7522780	7 7740705	7 7948215	7 8146261	7 8335669	34	
27	7 6798953	7 7055 53	7 7297267	7 7526504	7 7744246	7 7951590	7 8149486	7 8338757	33	
28	7 6803351	7 7059399	7 7301188	7 7530224	7 7747784	7 7954964	7 8152709	7 8341843	32	
29	7 6807745	7 7063541	7 7305106	7 7533940	7 7751319	7 7958334	7 8155930	7 8344926	31	
30	7 6812134	7 7067679	7 7309020	7 7537654	7 7754851	7 796170	7 8159148	7 8348007	30	
31	7 6816519	7 7071813	7 7312931	7 7541364	7 7758381	7 7965068	7 8162364	7 8351087	29	
32	7 6820899	7 7075944	7 7316839	7 7545011	7 7761907	7 7968431	7 8165578	7 8354163	28	
33	7 6825275	7 7080070	7 7320712	7 7548776	7 7765431	7 7971791	7 8168789	7 8357238	27	
34	7 6829646	7 7084193	7 7324643	7 7552477	7 7768952	7 7975148	7 8171998	7 8360311	26	
35	7 6834013	7 7088311	7 7328540	7 7556174	7 7772470	7 7978503	7 8175204	7 8363381	25	
36	7 6838376	7 7092426	7 7332433	7 7559869	7 7775985	7 7981856	7 8178408	7 8366449	24	
37	7 6842734	7 7096537	7 7336323	7 7563560	7 7779498	7 7985206	7 8181610	7 8369515	23	
38	7 6847081	7 7100643	7 7340209	7 7567249	7 7783007	7 7988553	7 8184809	7 8372580	22	
39	7 6851438	7 7104746	7 7344092	7 7570934	7 7786514	7 7991898	7 8188006	7 8375641	21	
40	7 6855783	7 7108846	7 7347972	7 7574610	7 7790018	7 7995240	7 8191201	7 8378701	20	
41	7 6860124	7 7112911	7 7351848	7 7578295	7 7793519	7 7998579	7 8194393	7 8381758	19	
42	7 6864460	7 7117032	7 7355720	7 7581971	7 7797017	7 8001916	7 8197583	7 8384813	18	
43	7 6868792	7 7121120	7 7359589	7 7585644	7 7800513	7 8005251	7 8200770	7 8387867	17	
44	7 6873120	7 7125203	7 7363455	7 7589313	7 7804005	7 8008582	7 8203956	7 8390918	16	
45	7 6877444	7 7129283	7 7367317	7 7592980	7 7807495	7 8011912	7 8207139	7 8393966	15	
46	7 6881763	7 7133359	7 7371176	7 7596643	7 7810982	7 8015238	7 8210319	7 8397013	14	
47	7 6886078	7 7137432	7 7375031	7 7600304	7 7814466	7 8018563	7 8213497	7 8400058	13	
48	7 6890389	7 7141500	7 7378883	7 7603961	7 7817948	7 8021884	7 8216673	7 8403100	12	
49	7 6894695	7 7145565	7 7382731	7 7607615	7 7821426	7 8025203	7 8219847	7 8406140	11	
50	7 6898997	7 7149623	7 7386577	7 7611266	7 7824902	7 8028520	7 8223018	7 8409179	10	
51	7 6903295	7 715368	7 7390418	7 7614915	7 7828375	7 8031834	7 8226187	7 8412215	9	
52	7 6907589	7 7157736	7 7394257	7 7618560	7 7831845	7 8035146	7 8229354	7 8415249	8	
53	7 6911878	7 7161785	7 7398091	7 7622202	7 7835313	7 8038455	7 8232518	7 8418280	7	
54	7 6916163	7 7165831	7 7401923	7 7625840	7 7838778	7 8041761	7 8235680	7 8421310	6	
55	7 6920444	7 7169873	7 7405751	7 7629476	7 7842240	7 8045065	7 8238840	7 8424338	5	
56	7 6924721	7 7173911	7 7409576	7 7633109	7 7845699	7 8048366	7 8241997	7 8427363	4	
57	7 6928993	7 7177945	7 7413397	7 7636739	7 7849155	7 8051665	7 8245153	7 8430387	3	
58	7 6933262	7 7181976	7 7417215	7 7640366	7 7852609	7 8054962	7 8248305	7 8433408	2	
59	7 6937526	7 7186003	7 7421030	7 7643989	7 7856060	7 8058256	7 8251456	7 8436427	1	
60	7 6941786	7 7190026	7 7424841	7 7647610	7 7859508	7 8061547	7 8254604	7 8439444	0	
77	43'	42'	41'	40'	39'	38'	37'	36'	77	

(224) 0 Deg		SINES								Tab	6
11	24'	25'	26'	27'	28'	29'	30'	31'	17		
c	7 8431338	7 8616623	7 8786953	7 8950854	7 9108793	7 9261190	7 9406419	7 9550811	6c		
1	7 8442353	7 8619517	7 8789736	7 8953534	7 9111378	7 9263685	7 9410831	7 9553153	59		
2	7 8445366	7 8622110	7 8792517	7 8956212	7 9113960	7 9266179	7 9413241	7 9555406	58		
3	7 8448377	7 8625307	7 8795297	7 8958889	7 9116542	7 9268671	7 9415651	7 9557018	57		
4	7 8451385	7 8628189	7 8798075	7 8961564	7 9119111	7 9271162	7 9418059	7 9560140	56		
5	7 8454392	7 8631075	7 8800850	7 8964431	7 9121699	7 9273651	7 9420465	7 9562478	55		
6	7 8457396	7 8633960	7 8803625	7 8966909	7 9124276	7 9276139	7 9422871	7 9564806	54		
7	7 8460398	7 8636843	7 8806597	7 8969579	7 9126851	7 9278626	7 9425275	7 9567133	53		
8	7 8463399	7 8639723	7 8809167	7 8972246	7 9129425	7 9281111	7 9427677	7 9569458	52		
9	7 8466397	7 8642602	7 8811936	7 8974914	7 9131997	7 9283595	7 9430079	7 9571781	51		
10	7 8469393	7 8645419	7 8814703	7 8977580	7 9134567	7 9286077	7 9432479	7 9574105	50		
11	7 8472387	7 8648354	7 8817469	7 8980437	7 9137136	7 9288558	7 9434877	7 9576417	49		
12	7 8475379	7 8651228	7 8820231	7 8982905	7 9139704	7 9291037	7 9437275	7 9578747	48		
13	7 8478369	7 8654099	7 8822994	7 8985565	7 9142269	7 9293516	7 9439671	7 9581067	47		
14	7 8481357	7 8656968	7 8825754	7 8988224	7 9144834	7 9295992	7 9442066	7 9583385	46		
15	7 8484343	7 8659836	7 8828512	7 8990881	7 9147397	7 9298467	7 9444459	7 9585701	45		
16	7 8487326	7 8662702	7 8831269	7 8993536	7 9149958	7 9300941	7 9446851	7 9588017	44		
17	7 8490308	7 8665565	7 8834023	7 8996190	7 9152518	7 9303414	7 9449242	7 9590331	43		
18	7 8493286	7 8668427	7 8836776	7 8998842	7 9155076	7 9305885	7 9451631	7 9592615	42		
19	7 8496265	7 8671287	7 8839528	7 9001493	7 9157633	7 9308354	7 9454019	7 9594956	41		
20	7 8499241	7 8674145	7 8842277	7 9004141	7 9160189	7 9310823	7 9456406	7 9597261	40		
21	7 8502215	7 8677001	7 8845025	7 9006789	7 9162743	7 9313289	7 9458792	7 9599576	39		
22	7 8505186	7 8679856	7 8847771	7 9009434	7 9165295	7 9315755	7 9461176	7 9601885	38		
23	7 8508156	7 8682708	7 8850515	7 9012078	7 9167846	7 9318219	7 9463559	7 9604192	37		
24	7 8511123	7 8685559	7 8853258	7 9014721	7 9170395	7 9320682	7 9465940	7 9606497	36		
25	7 8514088	7 8688408	7 8855999	7 9017362	7 9172943	7 9323145	7 9468311	7 9608802	35		
26	7 8517052	7 8691254	7 8858738	7 9020001	7 9175489	7 9325603	7 9470700	7 9611105	34		
27	7 8520013	7 8694099	7 8861475	7 9022639	7 9178034	7 9328061	7 9473077	7 9613407	33		
28	7 8522973	7 8696942	7 8864211	7 9025275	7 9180578	7 9330518	7 9475454	7 9615708	32		
29	7 8525930	7 8699784	7 8866945	7 9027909	7 9183120	7 9332974	7 9477829	7 9618008	31		
30	7 8528885	7 8702623	7 8869677	7 9030542	7 9185660	7 9335428	7 9480203	7 9620306	30		
31	7 8531839	7 8705461	7 8872407	7 9033173	7 9188199	7 9337881	7 9482575	7 9622603	29		
32	7 8534790	7 8708296	7 8875136	7 9035803	7 9190736	7 9340332	7 9484946	7 9624899	28		
33	7 8537739	7 8711130	7 8877863	7 9038431	7 9193272	7 9342783	7 9487316	7 9627194	27		
34	7 8540687	7 8713962	7 8880589	7 9041057	7 9195807	7 9345231	7 9489685	7 9629487	26		
35	7 8543632	7 8716792	7 8883312	7 9043682	7 9198340	7 9347679	7 9492052	7 9631780	25		
36	7 8546575	7 8719621	7 8886034	7 9046305	7 9200871	7 9350125	7 9494418	7 9634071	24		
37	7 8549517	7 8722447	7 8888754	7 9048927	7 9203401	7 9352569	7 9496783	7 9636361	23		
38	7 8552450	7 8725271	7 8891473	7 9051547	7 9205930	7 9355012	7 9499146	7 9638649	22		
39	7 8555393	7 8728095	7 8894190	7 9054166	7 9208457	7 9357454	7 9501508	7 9640937	21		
40	7 8558339	7 8730916	7 8896905	7 9056783	7 9210983	7 9359895	7 9503869	7 9643223	20		
41	7 8561262	7 8733735	7 8899618	7 9059398	7 9213507	7 9362334	7 9506229	7 9645508	19		
42	7 8564193	7 8736552	7 8902330	7 9062012	7 9216030	7 9364772	7 9508587	7 9647792	18		
43	7 8567123	7 8739367	7 8905040	7 9064624	7 9218551	7 9367208	7 9510944	7 9650075	17		
44	7 8570056	7 8742181	7 8907749	7 9067235	7 9221071	7 9369643	7 9513300	7 9652356	16		
45	7 8572976	7 8744993	7 8910455	7 9069844	7 9223589	7 9372077	7 9515654	7 9654637	15		
46	7 8575899	7 8747803	7 8913160	7 9072451	7 9226106	7 9374509	7 9518008	7 9656916	14		
47	7 8578821	7 8750611	7 8915864	7 9075057	7 9228621	7 9376940	7 9520360	7 9659194	13		
48	7 8581740	7 8753417	7 8918565	7 9077662	7 9231135	7 9379369	7 9522710	7 9661470	12		
49	7 8584658	7 8756222	7 8921265	7 9080265	7 9233648	7 9381798	7 9525060	7 9663746	11		
50	7 8587574	7 8759025	7 8923963	7 9082866	7 9236159	7 9384224	7 9527408	7 9666020	10		
51	7 8590487	7 8761826	7 8926660	7 9085466	7 9238668	7 9386650	7 9529755	7 9668293	9		
52	7 8593399	7 8764625	7 8929355	7 9088064	7 9241177	7 9389074	7 9532100	7 9670565	8		
53	7 8596309	7 8767421	7 8932048	7 9090660	7 9243683	7 9391497	7 9534444	7 9672836	7		
54	7 8599217	7 8770218	7 8934740	7 9093256	7 9246188	7 9393918	7 9536787	7 9675106	6		
55	7 8602123	7 8773011	7 8937430	7 9095849	7 9248692	7 9396338	7 9539129	7 9677374	5		
56	7 8605027	7 8775803	7 8940118	7 9098441	7 9251195	7 9398757	7 9541470	7 9679641	4		
57	7 8607929	7 8778594	7 8942804	7 9101031	7 9253696	7 9401175	7 9543809	7 9681907	3		
58	7 8610829	7 8781382	7 8945489	7 9103620	7 9256195	7 9403591	7 9546147	7 9684172	2		
59	7 8613727	7 8784168	7 8948173	7 9106208	7 9258693	7 9406005	7 9548484	7 9686436	1		
60	7 8616623	7 8786953	7 8950854	7 9108793	7 9261190	7 9408419	7 9550819	7 9688698	0		
11	35'	34'	33'	32'	31'	30'	29'	28'	17		

COSINES

89 Deg

o Deg		TANGENTS								(225)
77	24'	25'	26'	27'	28'	29'	30'	31'	77	
0	78439444	78616738	78787077	78950988	79108938	79261344	79408584	79550996	60	
1	78442459	78619632	78789861	78953668	79111522	79263840	79410996	79553336	59	
2	78445472	78622525	78792611	78956347	79114105	79266333	79413107	79555663	58	
3	78448483	78625415	78795422	78959023	79116686	79268826	79415817	79557995	57	
4	78451492	78628301	78798199	78961699	79119266	79271317	7941825	79560326	56	
5	78454503	78631191	78800975	7896437	79121814	79273807	7942063	79562655	55	
6	78457503	78634076	78803750	78967043	79124421	79276295	79423037	79564984	54	
7	78460505	78636956	78806522	78969714	79126996	7927878	79425441	79567310	53	
8	78463506	78639839	78809293	78972383	79129570	79281267	79427844	79569636	52	
9	78466504	78642719	7881206	78975050	79132142	79283751	79430246	79571961	51	
10	78469500	78645596	78814829	78977715	79134713	79286233	79432646	79574281	50	
11	78472494	78648471	78817591	78980379	7913728	79288714	79435045	79576606	49	
12	78475487	78651344	78820358	78983041	79139850	79291194	79437442	79578926	48	
13	78478477	78654216	7882310	78985701	79142410	79293672	79439839	79581246	47	
14	78481465	78657085	78825880	78988360	79144980	79296149	79442233	79583564	46	
15	78484451	78659953	78828639	78991017	79147543	79298625	794446-7	79585881	45	
16	78487435	78662819	78831395	78993673	79150105	79301090	79447019	79588197	44	
17	78490416	78665683	78834150	78996327	79152665	79303571	79449410	79590511	43	
18	78493396	78668545	78836903	78998979	79155221	79306043	79451800	79592825	42	
19	78496374	78671405	78839655	79001630	79157781	79308512	79454188	79595137	41	
20	78499350	78674263	78842404	79004279	79160336	79310981	79456575	79597447	40	
21	78502323	7867710	78845152	79006926	79162890	79313448	79458961	79599757	39	
22	78505295	78679974	78847899	79009572	79165443	79315913	79461345	79602065	38	
23	78508268	78682827	78850643	79012216	79167994	79318378	79463728	79604373	37	
24	78511232	78685677	78853386	79014859	79170543	79320840	79466110	79606678	36	
25	78514198	78688526	78856127	79017500	79173091	79323302	79468491	79608983	35	
26	78517161	78691373	78858866	79020139	79175638	79325762	79470870	79611287	34	
27	78520123	78694218	78861601	79022777	79178183	79328220	79473248	79613589	33	
28	78523083	78697062	78864331	79025413	79180727	79330678	79475624	79615890	32	
29	78526040	78699903	78867071	79028048	79183269	79333131	79478000	79618190	31	
30	78528996	78702743	78869806	79030681	79185809	79335588	79480374	79620488	30	
31	78531949	78705580	78872537	79033312	79188348	79338040	79482746	79622786	29	
32	78534900	78708416	78875266	79035942	79190886	79340493	79485118	7962508	28	
33	78537850	78711250	78877993	7903850	79193422	79342943	79487488	7962737	27	
34	78540797	78714082	78880718	79041097	79195957	7934539	79489856	79629670	26	
35	78543743	78716913	78883442	79043682	79198490	79347839	79492224	79631963	25	
36	78546686	78719741	78886164	79046245	79201022	79350286	79494590	7963424	24	
37	78549628	78722568	78888885	79048807	79203552	79352730	79496955	79636544	23	
38	78552567	78725393	78891603	79051367	79206081	79355174	79499319	79638833	22	
39	78555505	78728215	78894320	79053906	79208608	79357616	79501681	79641121	21	
40	78558440	78731037	78897036	79056423	79211134	79360057	7950404	79643408	20	
41	78561371	78733856	78899749	79058939	79213658	79362496	79506402	79645693	19	
42	78564305	78736673	78902461	79061453	79216181	79364934	79508760	79647977	18	
43	78567235	78739489	78905171	79064765	79218702	79367370	79511118	79650260	17	
44	78570163	78742303	78907880	79067376	79221222	79369805	79513474	79652541	16	
45	78573088	78745115	78910587	79069985	79223741	79372239	79515828	7965482	15	
46	78576012	78747925	7891329	79072593	79226258	79374672	79518182	79657101	14	
47	78578934	78750733	78915995	79075199	79228774	79377103	79520534	79659377	13	
48	78581853	78753540	78918697	79077801	79231288	79379533	79522885	79661656	12	
49	78584771	78756344	78921397	79080407	79233800	79381961	79525234	79663932	11	
50	78587687	78759147	78924096	79083008	79236312	79384388	79527582	79666206	10	
51	78590601	78761949	78926792	79085608	79238821	79386814	79529929	79668480	9	
52	78593513	78764748	78929487	79088207	79241330	79389238	79532275	79670752	8	
53	78596423	78767545	78932181	79090803	79243831	79391661	79534620	79673023	7	
54	78599331	78770341	78934873	79093399	79246342	79394083	79536963	79675293	6	
55	78602237	78773135	78937563	79095992	79248846	79396503	79539305	79677561	5	
56	78605141	78775927	78940251	79098581	79251348	7939892	79541646	79679829	4	
57	78608043	78778717	78942933	79101175	7925385	79401339	79543985	79682095	3	
58	78610943	78781506	78945623	79103761	79256349	79403756	79546323	79684360	2	
59	78613841	78784291	78948306	79106352	79258841	79406170	79548660	79686624	1	
60	78616738	78787077	78950988	79108938	79261344	79408584	79550996	79688886	0	
77	35'	34'	33'	32'	31'	30'	29'	28'	77	

COTANGENTS

I F

89 Deg

(226) 0 Deg		SINES								Tab 9
	32'	33'	34'	35'	36'	37'	38'	39'		
0	7 9688698	7 98...334	7 9951980	3 00/7867	8 0200207	8 0319195	8 0435009	8 0547814	60	
1	7 9690960	7 9824527	7 9954108	8 0079934	8 0202217	8 0321150	8 0436913	8 0549670	59	
2	7 9693220	7 9826718	7 9956235	8 0082001	8 0204216	8 0323105	8 0438816	8 0551524	58	
3	7 9695479	7 9828909	7 9958361	8 0084066	8 0206231	8 0325059	8 0440719	8 0553378	57	
4	7 9697736	7 9831098	7 9960487	8 0086131	8 0208242	8 0327011	8 0442621	8 0555231	56	
5	7 9699993	7 9833287	7 9962611	8 0088194	8 0210248	8 0328965	8 0444522	8 0557084	55	
6	7 9702248	7 9835474	7 9964734	8 0090257	8 0212253	8 0330916	8 0446422	8 0558935	54	
7	7 9704503	7 9837660	7 9966856	8 0092318	8 0214258	8 0332866	8 0448321	8 0560786	53	
8	7 9706756	7 9839845	7 9968977	8 0094379	8 0216261	8 0334816	8 0450220	8 0562636	52	
9	7 9709008	7 9842029	7 9971097	8 0096439	8 0218264	8 0336765	8 0452111	8 0564485	51	
10	7 9711258	7 9844211	7 9973216	8 0098497	8 0220266	8 0338713	8 0454014	8 0566333	50	
11	7 9713508	7 9846394	7 9975334	8 0100555	8 0222267	8 0340660	8 0455910	8 0568181	49	
12	7 9715756	7 9848574	7 9977451	8 0102611	8 0224267	8 0342606	8 0457805	8 0570028	48	
13	7 9718001	7 9850754	7 9979566	8 0104668	8 0226266	8 0344551	8 0459700	8 0571874	47	
14	7 9720250	7 9852933	7 9981681	8 0106722	8 0228261	8 0346495	8 0461593	8 0573719	46	
15	7 9722495	7 9855110	7 9983795	8 0108776	8 0230261	8 0348439	8 0463486	8 0575563	45	
16	7 9724738	7 9857286	7 9985908	8 0110829	8 0232257	8 0350382	8 0465378	8 0577407	44	
17	7 9726981	7 9859461	7 9988020	8 0112881	8 0234252	8 0352323	8 0467269	8 0579250	43	
18	7 9729222	7 9861636	7 9990130	8 0114932	8 0236247	8 0354264	8 0469159	8 0581092	42	
19	7 9731463	7 9863809	7 9992240	8 0116982	8 0238240	8 0356204	8 0471048	8 0582933	41	
20	7 9733704	7 9865981	7 9994349	8 0119031	8 0240233	8 0358143	8 0472937	8 0584774	40	
21	7 9735940	7 9868151	7 9996456	8 0121079	8 0242224	8 0360082	8 0474825	8 0586614	39	
22	7 9738177	7 9870321	7 9998563	8 0123126	8 0244215	8 0362019	8 0476712	8 0588453	38	
23	7 9740411	7 9872490	8 0000669	8 0125172	8 0246205	8 0363956	8 0478598	8 0590291	37	
24	7 9742644	7 9874658	8 0002773	8 0127217	8 0248194	8 0365892	8 0480483	8 0592128	36	
25	7 9744880	7 9876824	8 0004877	8 0129261	8 0250182	8 0367826	8 0482368	8 0593965	35	
26	7 9747113	7 9878989	8 0006979	8 0131304	8 0252169	8 0369760	8 0484251	8 0595801	34	
27	7 9749344	7 9881154	8 0009081	8 0133347	8 0254155	8 0371693	8 0486134	8 0597636	33	
28	7 9751574	7 9883317	8 0011181	8 0135388	8 0256140	8 0373626	8 0488016	8 0599470	32	
29	7 9753801	7 9885479	8 0013281	8 0137428	8 0258125	8 0375557	8 0489897	8 0601304	31	
30	7 9756030	7 9887641	8 0015379	8 0139468	8 0260108	8 0377488	8 0491778	8 0603137	30	
31	7 9758257	7 9889801	8 0017477	8 0141506	8 0262091	8 0379417	8 0493657	8 0604969	29	
32	7 9760482	7 9891960	8 0019573	8 0143543	8 0264072	8 0381346	8 0495536	8 0606800	28	
33	7 9762706	7 9894117	8 0021669	8 0145580	8 0266053	8 0383274	8 0497414	8 0608630	27	
34	7 9764929	7 9896274	8 0023763	8 0147615	8 0268033	8 0385201	8 0499291	8 0610460	26	
35	7 9767151	7 9898430	8 0025856	8 0149650	8 0270011	8 0387128	8 0501167	8 0612289	25	
36	7 9769372	7 9900585	8 0027949	8 0151684	8 0271990	8 0389053	8 0503043	8 0614117	24	
37	7 9771592	7 9902738	8 0030040	8 0153716	8 0273967	8 0390978	8 0504918	8 0615944	23	
38	7 9773810	7 9904891	8 0032131	8 0155748	8 0275943	8 0392901	8 0506792	8 0617771	22	
39	7 9776028	7 9907043	8 0034220	8 0157779	8 0277919	8 0394824	8 0508665	8 0619597	21	
40	7 9778244	7 9909193	8 0036308	8 0159808	8 0279893	8 0396746	8 0510537	8 0621422	20	
41	7 9780459	7 9911342	8 0038396	8 0161837	8 0281867	8 0398667	8 0512408	8 0623246	19	
42	7 9782673	7 9913491	8 0040482	8 0163865	8 0283839	8 0400588	8 0514279	8 0625070	18	
43	7 9784886	7 9915638	8 0042568	8 0165892	8 0285811	8 0402507	8 0516149	8 0626892	17	
44	7 9787098	7 9917784	8 0044652	8 0167918	8 0287782	8 0404426	8 0518018	8 0628714	16	
45	7 9789309	7 9919929	8 0046735	8 0169943	8 0289752	8 0406343	8 0519886	8 0630536	15	
46	7 9791518	7 9922073	8 0048818	8 0171967	8 0291721	8 0408260	8 0521754	8 0632356	14	
47	7 9793726	7 9924216	8 0050899	8 0173991	8 0293689	8 0410176	8 0523620	8 0634176	13	
48	7 9795934	7 9926358	8 0052979	8 0176013	8 0295656	8 0412092	8 0525486	8 0635995	12	
49	7 9798140	7 9928499	8 0055059	8 0178034	8 0297623	8 0414006	8 0527351	8 0637813	11	
50	7 9800345	7 9930639	8 0057137	8 0180055	8 0299588	8 0415920	8 0529216	8 0639630	10	
51	7 9802549	7 9932778	8 0059215	8 0182074	8 0301553	8 0417832	8 0531079	8 0641447	9	
52	7 9804752	7 9934915	8 0061291	8 0184093	8 0303517	8 0419744	8 0532942	8 0643263	8	
53	7 9806953	7 9937052	8 0063366	8 0186110	8 0305479	8 0421655	8 0534803	8 0645078	7	
54	7 9809154	7 9939188	8 0065441	8 0188127	8 0307441	8 0423565	8 0536665	8 0646893	6	
55	7 9811355	7 9941322	8 0067514	8 0190142	8 0309403	8 0425475	8 0538525	8 0648706	5	
56	7 9813552	7 9943456	8 0069587	8 0192157	8 0311363	8 0427383	8 0540384	8 0650519	4	
57	7 9815749	7 9945588	8 0071658	8 0194171	8 0313322	8 0429291	8 0542243	8 0652331	3	
58	7 9817945	7 9947720	8 0073729	8 0196184	8 0315280	8 0431198	8 0544101	8 0654143	2	
59	7 9820140	7 9949850	8 0075798	8 0198196	8 0317238	8 0433104	8 0545958	8 0655953	1	
60	7 9822334	7 9951980	8 0077867	8 0200207	8 0319195	8 0435009	8 0547814	8 0657763	0	
	27'	26'	25'	24'	23'	22'	21'	20'		

Cosines.

89 Deg.

o Deg		1 INCHES								(227)
	32'	33'	34'	35'	36'	37'	38'	39'		
c	7 9688880	7 9822534	7 9952192	8 0078092	8 020044	8 0319446	8 0435274	8 0548094	0	
1	7 9691148	7 982412	7 9954320	8 0080159	8 020455	8 0321402	8 0437179	8 0549941	19	
2	7 9693408	7 9826919	7 9956448	8 008226	8 020465	8 0323357	8 0439082	8 0551801	18	
3	7 9695667	7 98 9110	7 9958574	8 00849	8 0206473	8 0325311	8 0440985	8 055365	17	
4	7 969795	7 9831299	7 9960700	8 0086357	8 0208481	8 0327263	8 044288	8 0555512	16	
5	7 9700182	7 9833488	7 9962824	8 0088420	8 021048	8 0329217	8 0444788	8 0557364	15	
6	7 9702438	7 9835675	7 996494	8 0090483	8 0212491	8 0331169	8 0446689	8 0559216	14	
7	7 9704652	7 9837862	7 9967070	8 0092545	8 0214496	8 0333120	8 0448588	8 0561067	13	
8	7 9706945	7 9840047	7 9969191	8 0094606	8 0216501	8 0335069	8 0450487	8 056291	12	
9	7 9709198	7 9842231	7 9971311	8 0096666	8 0218504	8 0337018	8 0452385	8 056476	11	
10	7 9711449	7 9844414	7 9973430	8 0098725	8 0220506	8 0338967	8 045428	8 0566615	10	
11	7 9713698	7 9846596	7 9975548	8 0100783	8 0222507	8 0340914	8 0456178	8 0568463	9	
12	7 9715947	7 9848777	7 9977666	8 0102840	8 0224507	8 0342860	8 0458071	8 0570310	18	
13	7 9718194	7 9850957	7 9979782	8 0104896	8 0226507	8 0344806	8 0459968	8 0572156	17	
14	7 9720441	7 9853135	7 9981897	8 0106951	8 0228503	8 0346750	8 0461862	8 0574002	16	
15	7 9722686	7 9855313	7 9984011	8 0109005	8 0230500	8 0348694	8 0463755	8 0575846	15	
16	7 9724930	7 9857490	7 9986124	8 0111058	8 0232499	8 0350637	8 0465647	8 0577690	14	
17	7 9727173	7 9859665	7 9988236	8 0113110	8 0234494	8 0352579	8 0467538	8 0579534	13	
18	7 9729411	7 9861839	7 9990346	8 0115161	8 0236489	8 0354520	8 0469429	8 0581376	12	
19	7 9731655	7 9864013	7 9992456	8 0117211	8 0238483	8 0356460	8 0471318	8 0583217	11	
20	7 9733894	7 9866185	7 9994565	8 0119260	8 0240476	8 0358400	8 0473207	8 0585058	10	
21	7 973613	7 9868356	7 9996673	8 0121308	8 0242467	8 0360338	8 0475095	8 0586898	9	
22	7 9738369	7 9870526	7 9998780	8 0123356	8 0244458	8 0362276	8 0476982	8 0588737	38	
23	7 9740605	7 9872695	8 0000886	8 012540	8 0246448	8 0364213	8 0478869	8 0590576	37	
24	7 9742840	7 9874862	8 0002991	8 0127447	8 0248437	8 0366149	8 0480754	8 0592414	36	
25	7 9745073	7 987709	8 0005094	8 0129492	8 0250426	8 0368084	8 0482639	8 0594250	35	
26	7 9747306	7 9879195	8 0007197	8 0131535	8 0252413	8 0370018	8 0484523	8 0596087	34	
27	7 9749537	7 9881359	8 0009299	8 0133578	8 0254399	8 0371951	8 0486406	8 0597922	33	
28	7 975176	7 9883523	8 0011400	8 0135619	8 0256385	8 0373884	8 0488288	8 0599756	32	
29	7 9753996	7 9885685	8 0013499	8 0137660	8 0258369	8 0375815	8 0490169	8 0601590	31	
30	7 975624	7 9887847	8 0015598	8 0139699	8 0260353	8 0377746	8 0492050	8 0603423	30	
31	7 9758451	7 9890007	8 0017696	8 0141738	8 0262336	8 0379676	8 0493930	8 0605255	29	
32	7 9760676	7 9892166	8 0019792	8 0143775	8 0264318	8 0381605	8 0495809	8 060708	28	
33	7 9762901	7 9894324	8 0021888	8 014581	8 0266299	8 0383533	8 0497687	8 0608918	27	
34	7 9765124	7 9896481	8 0023983	8 0147848	8 0268279	8 0385461	8 0499564	8 0610748	26	
35	7 9767346	7 9898637	8 0026076	8 0149883	8 0270258	8 0387387	8 0501441	8 0612577	25	
36	7 9769567	7 9900792	8 0028169	8 0151916	8 0272236	8 0389313	8 0503317	8 0614405	24	
37	7 9771787	7 9902946	8 0030260	8 0153949	8 0274213	8 0391238	8 0505192	8 0616233	23	
38	7 9774006	7 9905099	8 0032351	8 0155981	8 0276190	8 0393162	8 0507066	8 0618060	22	
39	7 9776224	7 9907251	8 0034441	8 0158012	8 0278166	8 0395085	8 0508939	8 0619886	21	
40	7 9778440	7 9909401	8 0036529	8 0160042	8 0280140	8 0397007	8 0510812	8 0621711	20	
41	7 9780655	7 9911551	8 0038617	8 0162071	8 0282114	8 0398928	8 0512683	8 0623536	19	
42	7 9782870	7 9913699	8 0040703	8 0164099	8 0284087	8 0400849	8 0514551	8 0625359	18	
43	7 9785083	7 9915847	8 0042789	8 0166127	8 0286059	8 0402768	8 0516424	8 0627182	17	
44	7 9787295	7 9917993	8 0044874	8 0168153	8 0288030	8 0404687	8 0518294	8 0629005	16	
45	7 9789506	7 9920138	8 0046957	8 0170178	8 0290000	8 0406605	8 0520167	8 0630826	15	
46	7 9791715	7 9922283	8 0049040	8 0172203	8 0291969	8 0408522	8 0522030	8 0632647	14	
47	7 9793924	7 9924426	8 0051121	8 0174226	8 0293938	8 0410439	8 0523897	8 0634467	13	
48	7 9796131	7 9926568	8 0053202	8 0176248	8 0295905	8 0412351	8 0525763	8 0636286	12	
49	7 9798338	7 9928709	8 0055282	8 0178270	8 0297872	8 0414269	8 0527628	8 0638104	11	
50	7 9800543	7 9930849	8 0057360	8 0180291	8 0299838	8 0416183	8 0529493	8 0639922	10	
51	7 9802747	7 9932988	8 0059438	8 0182310	8 0301802	8 0418096	8 0531356	8 0641739	9	
52	7 9804950	7 9935126	8 0061514	8 0184329	8 0303766	8 0420008	8 0533219	8 0643555	8	
53	7 9807152	7 9937263	8 0063590	8 0186347	8 0305729	8 0421919	8 0535081	8 0645371	7	
54	7 9809353	7 9939399	8 0065665	8 0188364	8 0307692	8 0423829	8 0536943	8 0647185	6	
55	7 9811552	7 9941534	8 0067738	8 0190379	8 0309653	8 0425739	8 0538803	8 0648999	5	
56	7 9813751	7 9943667	8 0069811	8 0192394	8 0311613	8 0427648	8 0540663	8 0650812	4	
57	7 9815945	7 9945800	8 0071883	8 0194408	8 0313573	8 0429555	8 0542522	8 0652625	3	
58	7 9818145	7 9947932	8 0073953	8 0196422	8 0315531	8 0431462	8 0544380	8 0654431	2	
59	7 9820340	7 9950062	8 0076023	8 0198434	8 0317489	8 0433369	8 0546237	8 0656247	1	
60	7 9822534	7 9952192	8 0078092	8 0200445	8 0319446	8 0435274	8 0548094	8 0658057	0	
71	27'	6'	25'	24'	23'	22'	21'	20'	71	

(228) 0 Deg.		SINES								Tab 9
	40'	41'	42'	43'	44'	45'	46'	47'		
0	0657763	0764997	0869646	0971832	1071669	1169262	1264110	1358104	60	
1	0659572	0766762	0871369	0973515	1073314	1170810	1265283	1359641	59	
2	0661381	0768526	0873091	0975198	1074958	1172478	1267856	1361183	58	
3	0663188	0770290	0874813	0976879	1076601	1174085	1269428	1362722	57	
4	0664995	0772052	0876534	0978560	1078244	1175691	1270999	1364260	56	
5	0666801	0773815	0878254	0980240	1079886	1177297	1272570	1365797	55	
6	0668606	0775576	0879974	0981920	1081528	1178902	1274140	1367334	54	
7	0670411	0777337	0881692	0983599	1083169	1180507	1275710	1368871	53	
8	0672215	0779097	0883411	0985277	1084809	1182111	1277279	1370407	52	
9	0674018	0780856	0885128	0986955	1086449	1183714	1278848	1371942	51	
10	0675820	0782614	0886845	0988632	1088088	1185316	1280416	1373477	50	
11	0677622	0784372	0888561	0990309	1089726	1186919	1281983	1375011	49	
12	0679423	0786129	0890277	0991981	1091364	1188520	1283550	1376545	48	
13	0681223	0787886	0891991	0993659	1093001	1190121	1285117	1378078	47	
14	0683022	0789641	0893706	0995334	1094638	1191722	1286682	1379610	46	
15	0684821	0791396	0895419	0997008	1096274	1193322	1288248	1381141	45	
16	0686619	0793151	0897132	0998681	1097909	1194921	1289812	1382674	44	
17	0688416	0794904	0898844	1000353	1099544	1196519	1291376	1384205	43	
18	0690212	0796657	0900055	1002025	1101178	1198116	1292940	1385736	42	
19	0692008	0798409	0902266	1003697	1102811	1199715	1294503	1387265	41	
20	0693803	0800161	0903976	1005367	1104445	1201312	1296065	1388793	40	
21	0695597	0801912	0905685	1007037	1106077	1202908	1297627	1390324	39	
22	0697390	0803662	0907394	1008706	1107709	1204504	1299188	1391855	38	
23	0699183	0805411	0909102	1010375	1109340	1206099	1300749	1393380	37	
24	0700975	0807160	0910810	1012043	1110970	1207693	1302309	1394907	36	
25	0702766	0808908	0912516	1013710	1112600	1209287	1303869	1396434	35	
26	0704557	0810655	0914222	1015377	1114229	1210881	1305428	1397960	34	
27	0706346	0812401	0915928	1017043	1115858	1212474	1306986	1399485	33	
28	0708135	0814147	0917634	1018709	1117486	1214066	1308544	1401011	32	
29	0709923	0815892	0919339	1020374	1119113	1215657	1310101	1402535	31	
30	0711711	0817637	0921040	1022038	1120740	1217248	1311658	1404059	30	
31	0713498	0819380	0922743	1023701	1122366	1218839	1313215	1405583	29	
32	0715284	0821123	0924445	1025364	1123992	1220429	1314770	1407105	28	
33	0717069	0822866	0926148	1027027	1125617	1222018	1316325	1408621	27	
34	0718854	0824607	0927847	1028688	1127241	1223607	1317880	1410150	26	
35	0720637	0826348	0929547	1030349	1128865	1225195	1319434	1411671	25	
36	0722421	0828088	0931246	1032010	1130488	1226782	1320987	1413192	24	
37	0724203	0829828	0932945	1033669	1132110	1228369	1322540	1414712	23	
38	0725985	0831567	0934643	1035328	1133732	1229956	1324093	1416232	22	
39	0727765	0833305	0936340	1036987	1135354	1231541	1325644	1417751	21	
40	0729546	0835042	0938037	1038645	1136974	1233127	1327196	1419270	20	
41	0731325	0836779	0939733	1040302	1138595	1234711	1328746	1420788	19	
42	0733104	0838515	0941428	1041959	1140214	1236295	1330296	1422306	18	
43	0734882	0840251	0943123	1043615	1141833	1237879	1331846	1423823	17	
44	0736659	0841985	0944817	1045270	1143451	1239462	1333395	1425339	16	
45	0738436	0843719	0946510	1046926	1145069	1241044	1334943	1426855	15	
46	0740211	0845452	0948203	1048579	1146686	1242626	1336491	1428371	14	
47	0741986	0847185	0949895	1050232	1148302	1244207	1338038	1429886	13	
48	0743761	0848917	0951587	1051885	1149918	1245787	1339586	1431400	12	
49	0745534	0850648	0953277	1053537	1151534	1247367	1341132	1432914	11	
50	0747307	0852379	0954968	1055188	1153149	1248947	1342678	1434428	10	
51	0749080	0854109	0956657	1056839	1154764	1250526	1344223	1435940	9	
52	0750851	0855838	0958346	1058490	1156378	1252104	1345767	1437453	8	
53	0752622	0857566	0960034	1060139	1157992	1253682	1347311	1438964	7	
54	0754392	0859294	0961721	1061788	1159606	1255259	1348859	1440476	6	
55	0756161	0861021	0963408	1063437	1161219	1256836	1350398	1441987	5	
56	0757930	0862747	0965094	1065085	1162832	1258414	1351940	1443497	4	
57	0759698	0864473	0966780	1066732	1164444	1259992	1353482	1445007	3	
58	0761465	0866198	0968465	1068378	1166056	1261569	1355023	1446516	2	
59	0763231	0867922	0970149	1070024	1167668	1263146	1356564	1448024	1	
60	0764997	0869646	0971832	1071669	1169262	1264716	1358104	1449531	0	
11	19'	18'	17'	16'	15'	14'	13'	12'	71	

COSINES.

89 Deg.

Deg		LANGUENTS								(229)
11	40'	41'	42'	43'	44'	45'	46'	47'	11	
0	8 0658057	8 0765306	8 0869970	8 097217..	8 1072025	8 1169634	8 1265099	8 1358511	60	
1	8 0659866	8 0767071	8 0871693	8 0973855	8 1073670	8 1171243	8 1266672	8 1360050	59	
2	8 0661675	8 0768835	8 0873416	8 0975538	8 1075314	8 1172851	8 1268453	8 1361590	58	
3	8 0663483	8 0770599	8 0875138	8 0977220	8 1076958	8 1174458	8 1269817	8 1363120	57	
4	8 0665 90	8 0772362	8 0876859	8 0978901	8 1078601	8 1176064	8 1271389	8 1364667	56	
5	8 0667096	8 0774125	8 0878579	8 0980582	8 1080243	8 1177670	8 1272960	8 1366205	55	
6	8 0668902	8 0775886	8 0880291	8 098261	8 1081885	8 1179276	8 1274531	8 1367742	54	
7	8 0670707	8 0777647	8 0882018	8 0983941	8 1083520	8 1180881	8 1276101	8 1369279	53	
8	8 0672511	8 0779407	8 0883737	8 0985619	8 1085167	8 1182485	8 1277670	8 1370819	52	
9	8 0674314	8 0781167	8 0885453	8 0987297	8 1086807	8 1184088	8 1279239	8 1372350	51	
10	8 0676117	8 07829 6	8 088717	8 0988975	8 1088446	8 1185691	8 1280807	8 1373886	50	
11	8 0677919	8 0784634	8 0888888	8 0990651	8 1090085	8 1187294	8 1282375	8 1375420	49	
12	8 0679720	8 0786411	8 0890604	8 0992327	8 1091723	8 1188896	8 1283942	8 1376953	48	
13	8 0681520	8 0788198	8 0892311	8 0994003	8 1093361	8 1190497	8 1285509	8 1378488	47	
14	8 0683320	8 0789951	8 0894033	8 0995677	8 1094998	8 1192098	8 1287075	8 1380020	46	
15	8 0685118	8 0791709	8 0895747	8 0997351	8 1096634	8 1193698	8 1288641	8 1381553	45	
16	8 0686917	8 0793461	8 0897460	8 0999025	8 1098269	8 1195297	8 1290206	8 1383085	44	
17	8 0688714	8 0795218	8 0899172	8 1000698	8 1099994	8 1196896	8 1291770	8 1384616	43	
18	8 0690511	8 0796971	8 0900884	8 1002370	8 1101539	8 1198495	8 1293334	8 1386147	42	
19	8 0692306	8 0798723	8 0902595	8 1004041	8 1103173	8 1200092	8 1294897	8 1387677	41	
20	8 0694102	8 0800475	8 0904305	8 1005712	8 1104806	8 1201660	8 1296460	8 1389207	40	
21	8 0695896	8 0802226	8 0906015	8 1007382	8 1106438	8 1203223	8 1298022	8 1390736	39	
22	8 0697690	8 0803976	8 0907721	8 1009052	8 1108070	8 1204784	8 1299583	8 1392264	38	
23	8 0699483	8 0805726	8 0909432	8 1010721	8 1109702	8 1206347	8 1301144	8 1393792	37	
24	8 0701275	8 0807475	8 0911140	8 1012389	8 1111332	8 1207907	8 1302705	8 1395320	36	
25	8 0703066	8 0809223	8 0912847	8 1014057	8 1112962	8 1209466	8 1304265	8 1396847	35	
26	8 0704857	8 0810970	8 0914553	8 1015724	8 1114592	8 1211026	8 1305824	8 1398373	34	
27	8 0706647	8 0812717	8 0916259	8 1017390	8 1116221	8 1212585	8 1307383	8 1399899	33	
28	8 0708436	8 0814463	8 0917964	8 1019056	8 1117849	8 1214144	8 1308941	8 1401425	32	
29	8 0710225	8 0816208	8 0919668	8 1020721	8 1119477	8 1215703	8 1310499	8 1402949	31	
30	8 071201	8 0817953	8 0921372	8 1022386	8 1121104	8 1217262	8 1312056	8 1404474	30	
31	8 0713791	8 0819697	8 0923075	8 1024049	8 1122730	8 1218821	8 1313612	8 1405997	29	
32	8 0715586	8 0821440	8 0924777	8 1025713	8 1124356	8 1220380	8 1315168	8 1407521	28	
33	8 0717371	8 0823183	8 0926479	8 1027378	8 1125981	8 1221939	8 1316723	8 1409043	27	
34	8 0719156	8 0824925	8 0928180	8 1029037	8 1127606	8 1223498	8 1318278	8 1410566	26	
35	8 0720940	8 0826666	8 0929880	8 1030698	8 1129230	8 1225057	8 1319833	8 1412087	25	
36	8 0722723	8 0828406	8 0931579	8 1032352	8 1130853	8 1226616	8 1321388	8 1413608	24	
37	8 0724506	8 0830146	8 0933278	8 1034019	8 1132476	8 1228175	8 1322940	8 1415129	23	
38	8 0726288	8 0831885	8 0934977	8 1035678	8 1134098	8 1229734	8 1324492	8 1416649	22	
39	8 0728069	8 0833624	8 0936674	8 1037337	8 11357 0	8 1231293	8 1326044	8 1418168	21	
40	8 0729850	8 0835361	8 0938371	8 1038995	8 1137341	8 1232852	8 1327596	8 1419687	20	
41	8 0731629	8 0837098	8 0940068	8 1040653	8 1138961	8 1234411	8 1329147	8 1421206	19	
42	8 0733408	8 0838835	8 0941763	8 1042309	8 1140581	8 1235970	8 1330697	8 1422721	18	
43	8 0735186	8 0840570	8 0943458	8 1043966	8 1142200	8 1237529	8 1332247	8 1424241	17	
44	8 0736964	8 0842305	8 0945153	8 1045621	8 1143819	8 1239088	8 1333796	8 1425758	16	
45	8 0738741	8 0844039	8 0946846	8 1047276	8 1145437	8 1240647	8 1335345	8 1427274	15	
46	8 0740517	8 0845773	8 0948539	8 1048931	8 1147054	8 1242206	8 1336893	8 1428790	14	
47	8 0742292	8 0847506	8 0950232	8 1050584	8 1148671	8 1243765	8 1338441	8 1430305	13	
48	8 0744067	8 0849238	8 0951923	8 1052237	8 1150287	8 1245324	8 1339988	8 1431820	12	
49	8 0745841	8 0850969	8 0953614	8 1053890	8 1151903	8 1246883	8 1341535	8 1433334	11	
50	8 0747614	8 0852700	8 0955305	8 1055542	8 1153518	8 1248442	8 1343081	8 1434848	10	
51	8 0749386	8 0854430	8 0956994	8 1057193	8 1155132	8 1250001	8 1344626	8 1436361	9	
52	8 0751158	8 0856160	8 0958683	8 1058843	8 1156746	8 1251560	8 1346171	8 1437874	8	
53	8 0752929	8 0857888	8 0960372	8 1060493	8 1158359	8 1253119	8 1347715	8 1439386	7	
54	8 0754699	8 0859616	8 0962060	8 1062143	8 1159972	8 1254678	8 1349259	8 1440897	6	
55	8 0756469	8 0861344	8 0963747	8 1063791	8 1161584	8 1256237	8 1350802	8 1442408	5	
56	8 0758238	8 0863070	8 0965433	8 1065439	8 1163195	8 1257796	8 1352345	8 1443919	4	
57	8 0760006	8 0864796	8 0967119	8 1067087	8 1164806	8 1259355	8 1353887	8 1445429	3	
58	8 0761773	8 0866522	8 0968804	8 1068733	8 1166416	8 1260914	8 1355429	8 1446938	2	
59	8 0763540	8 0868246	8 0970488	8 1070380	8 1168025	8 1262473	8 1356970	8 1448447	1	
60	8 0765306	8 0869970	8 0972172	8 1072025	8 1169634	8 1265099	8 1358510	8 1449956	0	
11	19'	18'	17'	16'	15'	14'	13'	12'	11	
CORANGENTS.										
89 Deg.										

CORANGENTS.

89 Deg.

(230)		o Deg		SINES							
		48'	49'	50'	51'	52'	53'	54'			
0	3	1449532	1539075	1626808	1712804	1797129	1879848	1961010			
1	3	1451040	1540552	1628255	1714223	17985-1	1881213	1962			
2	8	1452547	1542028	1629702	1715641	1799912	1882578	1963			
3	3	1454054	1543504	1631149	1717059	1801303	1883943	19650			
4	3	1455560	1544979	1632594	1718477	1802693	1885307	1966			
5	8	1457065	1546454	1634040	1719894	1804083	1886670	1967			
6	8	1458570	1547928	1635485	1721310	1805472	1888034	19690			
7	8	1460075	1549402	1636929	1722726	1806861	1889397	1970			
8	8	1461579	1550876	1638373	1724142	1808250	1890759	1971			
9	8	1463082	1552348	1639817	1725557	1809638	18921-1	19730			
10	8	1464585	1553821	1641259	1726972	18110-5	1893482	1974			
11	8	1466087	1555293	1642702	1728386	1812413	1894843	1975			
12	3	1467589	1556764	1644144	1729800	1813799	1896204	19770			
13	8	1469091	1558235	1645586	1731214	1815186	1897564	1978			
14	8	1470591	1559705	1647027	1732627	1816571	1898924	1979			
15	8	1472092	1561175	1648467	1734039	1817957	1900284	19810			
16	8	1473594	1562644	1649907	1735451	1819342	1901643	1982			
17	8	1475091	1564113	1651347	1736863	1820726	1903001	1983			
18	8	1476590	1565582	1652786	1738274	1822111	1904359	1985			
19	8	1478088	1567049	1654225	1739684	1823494	1905717	1986			
20	8	1479586	1568517	1655663	1741094	1824877	1907074	1987			
21	8	1481083	1569984	1657101	1742504	1826260	1908431	1989			
22	8	1482579	1571450	1658538	1743913	1827643	1909788	1990			
23	8	1484076	1572916	1659975	1745322	1829024	1911144	1991			
24	8	1485571	1574381	1661411	1746731	1830406	1912499	1992			
25	8	1487066	1575846	1662847	1748138	1831787	1913854	1994			
26	8	1488561	1577310	1664282	1749546	1833167	1915209	1995			
27	8	1490055	1578774	1665717	1750953	1834548	1916563	19970			
28	8	1491549	1580238	1667151	1752359	1835927	1917917	1998			
29	8	1493042	1581701	1668585	1753765	1837307	1919271	1999			
30	8	1494534	1583163	1669019	1755171	1838685	1920624	2000			
31	8	1496027	1584625	1670452	1756576	1840064	1921976	200			
32	8	1497518	1586086	1671884	1757981	1841442	1923329	200			
33	8	1499009	1587547	1673316	1759385	1842819	1924680	200			
34	8	1500500	1589008	1674748	1760789	1844196	1926032	200			
35	8	1501990	1590468	1676179	1762192	1845573	1927383	200			
36	8	1503479	1591927	1677610	1763595	1846949	1928733	200			
37	8	1504968	1593386	1680040	1764998	1848325	1930083	201			
38	8	1506457	1594845	1681469	1766400	1849700	1931433	201			
39	8	1507945	1596303	1682899	1767801	1851075	1932782	201			
40	8	1509432	1597760	1684327	1769202	1852450	1934131	201			
41	8	1510919	1599217	1685756	1770603	1853824	1935479	201			
42	8	1512406	1600674	1687183	1772003	1855197	1936827	201			
43	8	1513891	1602130	1688611	1773403	1856570	1938175	201			
44	8	1515377	1603585	1690038	1774802	1857943	1939522	201			
45	8	1516862	1605040	1691464	1776201	1859315	1940869	202			
46	8	1518346	1606495	1692890	1777599	1860687	1942215	202			
47	8	1519830	1607949	1694315	1778997	1862059	1943561	202			
48	8	1521314	1609403	1695740	1780394	1863430	1944907	202			
49	8	1522796	1610856	1697165	1781791	1864800	1946252	202			
50	8	1524279	1612308	1698589	1783188	1866170	1947596	202			
51	8	1525761	1613761	1700012	1784584	1867540	1948941	202			
52	8	1527244	1615212	1701435	1785980	1868909	1950284	202			
53	8	1528723	1616663	1702848	1787375	1870278	1951628	202			
54	8	1530203	1618114	1704260	1788770	1871646	1952971	202			
55	8	1531683	1619564	1705672	1790164	1873014	1954313	202			
56	8	1533163	1621014	1707073	1791558	1874382	1955656	202			
57	8	1534641	1622463	1708474	1792951	1875749	1956997	202			
58	8	1536120	1623912	1709874	1794341	1877116	1958339	202			
59	8	1537598	1625360	1711284	1795737	1878482	1959680	202			
60	8	1539075	1626808	1712804	1797129	1879848	1961020	202			
		11'	10'	9'	8'	7'	6'				

COSINES.

0 Deg		TANGENTS										(231)	
77	48'	49'	50'	51'	52'	53'	54'	55'	77				
0	8 1449956	8 1539516	8 1627267	8 171328	8 1797626	8 1880364	8 1961556	8 2041259	60				
1	8 1451464	8 1540993	8 1628715	8 1714701	8 1799018	8 1881730	8 1962896	8 2041575	59				
2	8 1452971	8 1542470	8 163016	8 171610	8 1800409	8 1883095	8 1964236	8 2043890	58				
3	8 1454478	8 1543946	8 1631609	8 1717538	8 1801800	8 1884460	8 1965576	8 2045206	57				
4	8 1455984	8 1545427	8 1633055	8 1718956	8 1803191	8 1885824	8 1966915	8 2046521	56				
5	8 1457490	8 1546897	8 1634501	8 1720373	8 1804581	8 1887188	8 1968254	8 2047835	55				
6	8 1458995	8 1548371	8 1635946	8 1721790	8 1805971	8 1888552	8 1969592	8 2049149	54				
7	8 1460500	8 1549846	8 1637391	8 1723207	8 1807360	8 1889915	8 1970930	8 2050463	53				
8	8 1462004	8 1551319	8 1638835	8 1724623	8 1808749	8 1891278	8 1972268	8 2051776	52				
9	8 1463508	8 1552792	8 1640279	8 1726038	8 1810137	8 1892640	8 1973605	8 2053089	51				
10	8 1465011	8 1554265	8 1641722	8 1727453	8 1811525	8 1894002	8 1974942	8 2054401	50				
11	8 1466514	8 1555737	8 1643165	8 1728868	8 1812913	8 1895363	8 1976278	8 2055714	49				
12	8 1468016	8 1557209	8 1644607	8 1730282	8 1814300	8 1896724	8 1977614	8 2057025	48				
13	8 1469518	8 1558680	8 1646049	8 1731696	8 1815687	8 1898085	8 1978949	8 2058337	47				
14	8 1471019	8 1560151	8 1647490	8 1733109	8 1817073	8 1899445	8 1980284	8 2059647	46				
15	8 1472520	8 1561621	8 1648931	8 1734522	8 1818459	8 1900805	8 1981619	8 2060958	45				
16	8 1474020	8 1563090	8 1650372	8 1735934	8 1819844	8 1902164	8 1982953	8 2062268	44				
17	8 1475519	8 1564559	8 1651812	8 1737346	8 1821229	8 1903523	8 1984287	8 2063578	43				
18	8 1477018	8 1566028	8 1653251	8 1738757	8 1822613	8 1904881	8 1985621	8 2064887	42				
19	8 1478517	8 1567496	8 1654690	8 1740168	8 1823997	8 1906239	8 1986954	8 2066196	41				
20	8 1480015	8 1568964	8 1656128	8 1741579	8 1825381	8 1907597	8 1988286	8 2067505	40				
21	8 1481512	8 1570431	8 1657566	8 1742989	8 1826764	8 1908954	8 1989619	8 2068813	39				
22	8 1483009	8 1571898	8 1659004	8 1744398	8 1828146	8 1910311	8 1990950	8 2070120	38				
23	8 1484506	8 1573364	8 1660441	8 1745807	8 1829529	8 1911667	8 1992282	8 2071428	37				
24	8 1486002	8 1574830	8 1661878	8 1747216	8 1830910	8 1913023	8 1993613	8 2072735	36				
25	8 1487497	8 1576295	8 1663314	8 1748624	8 1832292	8 1914379	8 1994943	8 2074041	35				
26	8 1488992	8 1577759	8 1664749	8 1750032	8 1833673	8 1915734	8 1996273	8 2075348	34				
27	8 1490487	8 1579224	8 1666185	8 1751439	8 1835053	8 1917088	8 1997603	8 2076653	33				
28	8 1491980	8 1580687	8 1667619	8 1752846	8 1836433	8 1918442	8 1998933	8 2077959	32				
29	8 1493474	8 1582151	8 1669054	8 1754252	8 1837813	8 1919796	8 2000262	8 2079264	31				
30	8 1494967	8 1583613	8 1670487	8 1755658	8 1839192	8 1921150	8 2001590	8 2080568	30				
31	8 1496459	8 1585076	8 167191	8 1757064	8 1840571	8 1922503	8 2002918	8 2081873	29				
32	8 1497951	8 1586537	8 1673353	8 1758469	8 1841949	8 1923855	8 2004246	8 2083176	28				
33	8 1499444	8 1587999	8 1674786	8 1759873	8 1843327	8 1925207	8 2005573	8 2084480	27				
34	8 1500933	8 1589459	8 1676218	8 1761278	8 1844704	8 1926559	8 2006900	8 2085783	26				
35	8 1502422	8 1590920	8 1677649	8 1762681	8 1846081	8 1927910	8 2008227	8 2087086	25				
36	8 1503913	8 1592379	8 1679080	8 1764084	8 1847458	8 1929261	8 2009553	8 2088388	24				
37	8 1505402	8 1593839	8 1680518	8 1765487	8 1848834	8 1930611	8 2010879	8 2089690	23				
38	8 1506891	8 1595297	8 1681946	8 1766889	8 1850206	8 1931961	8 2012204	8 2090991	22				
39	8 1508380	8 1596756	8 1683379	8 1768291	8 1851585	8 1933311	8 2013529	8 2092292	21				
40	8 1509867	8 1598213	8 1684799	8 1769693	8 1852959	8 1934660	8 2014853	8 2093593	20				
41	8 1511355	8 1599671	8 1686228	8 1771094	8 1854334	8 1936009	8 2016177	8 2094893	19				
42	8 1512841	8 1601128	8 1687656	8 1772494	8 1855708	8 1937357	8 2017501	8 2096193	18				
43	8 1514328	8 1602584	8 1689083	8 1773894	8 1857081	8 1938705	8 2018824	8 2097493	17				
44	8 1515813	8 1604040	8 1690510	8 1775294	8 1858454	8 1940053	8 2020147	8 2098792	16				
45	8 1517299	8 1605495	8 1691937	8 1776693	8 1859827	8 1941400	8 2021470	8 2100091	15				
46	8 1518783	8 1606950	8 1693363	8 1778091	8 1861199	8 1942746	8 2022792	8 2101389	14				
47	8 1520267	8 1608404	8 1694789	8 1779490	8 1862571	8 1944093	8 2024113	8 2102687	13				
48	8 1521751	8 1609858	8 1696214	8 1780887	8 1863942	8 1945439	8 2025435	8 2103985	12				
49	8 1523234	8 1611312	8 1697639	8 1782285	8 1865313	8 1946784	8 2026756	8 2105282	11				
50	8 1524717	8 1612765	8 1699064	8 1783682	8 1866683	8 1948129	8 2028076	8 2106579	10				
51	8 1526199	8 1614217	8 1700487	8 1785078	8 1868053	8 1949473	8 2029396	8 2107875	9				
52	8 1527681	8 1615669	8 1701911	8 1786474	8 1869423	8 1950818	8 2030716	8 2109171	8				
53	8 1529162	8 1617121	8 1703331	8 1787870	8 1870792	8 1952161	8 2032035	8 2110467	7				
54	8 1530643	8 1618572	8 1704756	8 1789265	8 1872161	8 1953505	8 2033354	8 2111762	6				
55	8 1532123	8 1620022	8 1706178	8 1790659	8 1873529	8 1954848	8 2034672	8 2113057	5				
56	8 1533603	8 1621472	8 1707600	8 1792054	8 1874899	8 1956190	8 2035990	8 2114351	4				
57	8 1535082	8 1622922	8 1709021	8 1793447	8 1876264	8 1957532	8 2037308	8 2115646	3				
58	8 1536560	8 1624371	8 1710442	8 1794841	8 1877631	8 1958874	8 2038625	8 2116939	2				
59	8 1538038	8 1625819	8 1711864	8 1796233	8 1878998	8 1960215	8 2039942	8 2118233	1				
60	8 1539511	8 1627267	8 1713287	8 1797626	8 1880364	8 1961556	8 2041259	8 2119526	0				
77	11'	10'	9'	8'	7'	6'	5'	4'	77				
COTANGENTS.													
89 Deg.													

COTANGENTS.

89 Deg.

(232) 0 Deg		SINES.				1 Deg.		Tab. 9	
		56'	57'	58'	59'	0'	1'	2'	3'
0	8 2118949	8 195811	8 2271335	8 2315568	8 2418553	8 2490332	8 2560943	8 2630424	60
1	8 2120242	8 2197080	8 2272583	8 2346795	8 2419759	8 2491518	8 2562110	8 2631572	59
2	8 2121533	8 2198349	8 2273830	8 2348021	8 2420965	8 2492704	8 2563277	8 2632721	58
3	8 2122825	8 2199618	8 2275077	8 2349247	8 2422170	8 2493890	8 2564413	8 2633869	57
4	8 2124116	8 2200887	8 2276324	8 2350472	8 2423376	8 2495075	8 2565609	8 2635016	56
5	8 2125407	8 2202155	8 2277570	8 2351697	8 2424580	8 2496260	8 2566775	8 2636164	55
6	8 2126697	8 2203423	8 2278816	8 2352922	8 2425785	8 2497445	8 2567941	8 2637311	54
7	8 2127987	8 2204690	8 2280061	8 2354147	8 2426989	8 2498629	8 2569106	8 2638458	53
8	8 2129277	8 2205957	8 2281306	8 2355371	8 2428192	8 2499813	8 2570271	8 2639604	52
9	8 2130566	8 2207223	8 2282551	8 2356594	8 2429396	8 2500997	8 2571436	8 2640750	51
10	8 2131854	8 2208490	8 2283796	8 2357818	8 2430599	8 2502180	8 2572600	8 2641896	50
11	8 2133143	8 2209756	8 2285040	8 2359041	8 2431802	8 2503363	8 2573764	8 2643042	49
12	8 2134431	8 2211021	8 2286284	8 2360264	8 2433004	8 2504546	8 2574928	8 2644187	48
13	8 2135719	8 2212286	8 2287527	8 2361486	8 2434206	8 2505728	8 2576091	8 2645332	47
14	8 2137006	8 2213551	8 2288770	8 2362708	8 2435408	8 2506911	8 2577255	8 2646477	46
15	8 2138293	8 2214815	8 2290013	8 2363930	8 2436609	8 2508092	8 2578417	8 2647621	45
16	8 2139579	8 2216079	8 2291255	8 2365151	8 2437810	8 2509274	8 2579580	8 2648766	44
17	8 2140865	8 2217343	8 2292497	8 2366372	8 2439011	8 2510455	8 2580742	8 2649909	43
18	8 2142151	8 2218606	8 2293739	8 2367593	8 2440212	8 2511636	8 2581904	8 2651053	42
19	8 2143436	8 2219869	8 2294980	8 2368813	8 2441412	8 2512816	8 2583065	8 2652196	41
20	8 2144721	8 2221132	8 2296221	8 2370033	8 2442611	8 2513996	8 2584227	8 2653339	40
21	8 2146006	8 2222394	8 2297461	8 2371253	8 2443811	8 2515176	8 2585388	8 2654481	39
22	8 2147290	8 2223656	8 2298701	8 2372472	8 2445010	8 2516356	8 2586548	8 2655623	38
23	8 2148574	8 2224917	8 2299941	8 2373691	8 2446209	8 2517535	8 2587709	8 2656766	37
24	8 2149857	8 2226178	8 2301181	8 2374910	8 2447407	8 2518714	8 2588869	8 2657908	36
25	8 2151140	8 2227439	8 2302420	8 2376128	8 2448605	8 2519893	8 2590028	8 2659049	35
26	8 2152423	8 2228699	8 2303659	8 2377346	8 2449803	8 2521071	8 2591188	8 2660190	34
27	8 2153705	8 2229959	8 2304897	8 2378563	8 2451000	8 2522249	8 2592347	8 2661331	33
28	8 2154987	8 2231219	8 2306135	8 2379781	8 2452198	8 2523426	8 2593505	8 2662471	32
29	8 2156269	8 2232478	8 2307373	8 2380997	8 2453394	8 2524604	8 2594660	8 2663612	31
30	8 2157550	8 2233737	8 2308610	8 2382214	8 2454591	8 2525781	8 2595822	8 2664751	30
31	8 2158831	8 2234996	8 2309847	8 2383430	8 2455787	8 2526957	8 2596980	8 2665891	29
32	8 2160111	8 2236254	8 2311084	8 2384646	8 2456983	8 2528134	8 2598137	8 2667030	28
33	8 2161391	8 2237512	8 2312320	8 2385862	8 2458178	8 2529310	8 2599295	8 2668169	27
34	8 2162671	8 2238769	8 2313556	8 2387077	8 2459373	8 2530485	8 2600451	8 2669308	26
35	8 2163950	8 2240026	8 2314792	8 2388292	8 2460568	8 2531661	8 2601608	8 2670446	25
36	8 2165229	8 2241283	8 2316027	8 2389506	8 2461762	8 2532836	8 2602764	8 2671585	24
37	8 2166508	8 2242539	8 2317262	8 2390720	8 2462957	8 2534011	8 2603920	8 2672723	23
38	8 2167786	8 2243795	8 2318496	8 2391934	8 2464150	8 2535185	8 2605076	8 2673860	22
39	8 2169064	8 2245051	8 2319731	8 2393148	8 2465344	8 2536359	8 2606232	8 2674997	21
40	8 2170341	8 2246306	8 2320965	8 2394361	8 2466537	8 2537533	8 2607388	8 2676134	20
41	8 2171618	8 2247561	8 2322198	8 2395574	8 2467730	8 2538706	8 2608541	8 2677271	19
42	8 2172895	8 2248815	8 2323431	8 2396786	8 2468922	8 2539880	8 2609696	8 2678407	18
43	8 2174171	8 2250070	8 2324664	8 2397998	8 2470115	8 2541052	8 2610850	8 2679543	17
44	8 2175447	8 2251323	8 2325896	8 2399210	8 2471306	8 2542225	8 2612004	8 2680679	16
45	8 2176723	8 2252577	8 2327128	8 2400422	8 2472498	8 2543397	8 2613157	8 2681814	15
46	8 2177998	8 2253830	8 2328360	8 2401633	8 2473689	8 2544569	8 2614311	8 2682949	14
47	8 2179273	8 2255083	8 2329592	8 2402844	8 2474880	8 2545741	8 2615463	8 2684084	13
48	8 2180547	8 2256335	8 2330823	8 2404054	8 2476071	8 2546912	8 2616616	8 2685219	12
49	8 2181821	8 2257587	8 2332053	8 2405264	8 2477261	8 2548083	8 2617768	8 2686353	11
50	8 2183095	8 2258839	8 2333284	8 2406474	8 2478451	8 2549254	8 2618920	8 2687487	10
51	8 2184368	8 2260090	8 2334514	8 2407683	8 2479640	8 2550424	8 2620072	8 2688620	9
52	8 2185641	8 2261341	8 2335743	8 2408892	8 2480829	8 2551594	8 2621223	8 2689754	8
53	8 2186913	8 2262591	8 2336973	8 2410101	8 2482018	8 2552764	8 2622375	8 2690887	7
54	8 2188186	8 2263841	8 2338202	8 2411310	8 2483207	8 2553933	8 2623525	8 2692020	6
55	8 2189457	8 2265091	8 2339430	8 2412518	8 2484395	8 2555102	8 2624676	8 2693152	5
56	8 2190729	8 2266341	8 2340659	8 2413725	8 2485583	8 2556271	8 2625826	8 2694284	4
57	8 2192000	8 2267590	8 2341886	8 2414932	8 2486771	8 2557439	8 2626976	8 2695416	3
58	8 2193271	8 2268838	8 2343114	8 2416140	8 2487958	8 2558607	8 2628125	8 2696548	2
59	8 2194541	8 2270087	8 2344341	8 2417347	8 2489145	8 2559775	8 2629275	8 2697679	1
60	8 2195811	8 2271335	8 2345568	8 2418551	8 2490332	8 2560943	8 2630424	8 2698810	0

COSINES.

88 Deg.

88 Deg.

0 Deg		I ANGLES I Deg								(23)	
11	56'	57'	58'	59'	0'	1'	2'	3'	4'	5'	6'
0	8 2119526	8 2196408	8 2 71953	8 2346208	8 2419 15	8 2491015	8 2501641	8 2651153	6		
1	8 2120818	8 2197678	8 2273201	8 2317435	8 4 0121	8 249220	8 256281	8 263 302	5		
2	8 2122110	8 198947	8 2274449	8 2348061	8 2421627	8 2493388	8 2563984	8 2633451	58		
3	8 212340	8 2200 16	8 2 75696	8 2349887	8 2422833	8 2494574	8 2565151	8 2634519	5		
4	8 2124694	8 2201485	8 276743	8 2351113	8 2424038	8 2495760	8 56631	8 635747	50		
5	8 21 5985	8 220254	8 278190	8 352339	8 24 5244	8 2496946	8 2567181	8 2636815	55		
6	8 12, 15	8 22040 2	8 2279436	8 2353561	8 2426448	8 2498131	8 2568650	8 2638 13	54		
7	8 2128566	8 2 05 89	8 280682	8 354789	8 2427653	8 2499315	8 2569815	8 639190	53		
8	8 2129855	8 2 06557	8 261927	8 356013	8 2428857	8 2500500	8 2570981	8 2640337	52		
9	8 1, 1145	8 2 07521	8 2 83173	8 2357237	8 2430061	8 2501684	8 2572146	8 2641483	51		
10	8 2132131	8 2 09090	8 61117	8 2358461	8 2431264	8 2502868	8 573310	8 2642630	50		
11	8 2133723	8 2210356	8 8566	8 2359684	8 2432467	8 504051	8 2574475	8 645776	49		
12	8 2135017	8 2211622	8 2 86906	8 2360908	8 2433670	8 2505234	8 2575639	8 26449 148			
13	8 136 99	8 2212888	8 288150	8 2362130	8 2434872	8 2506417	8 2576803	8 2646067	47		
14	8 137587	8 2 14153	8 2289393	8 2363353	8 2436075	8 250 600	8 2577966	8 2647212	46		
15	8 2138874	8 2215118	8 230636	8 2364515	8 2437276	8 2508782	8 2579129	8 2648557	45		
16	8 2140161	8 2216682	8 2291879	8 365791	8 4384 8	8 2509964	8 258029	8 2649501	44		
17	8 141147	8 2217946	8 2293121	8 2367018	8 2439679	8 2511145	8 2581455	8 2650645	43		
18	8 142733	8 19210	8 294363	8 2368239	8 2440880	8 2512326	8 2582617	8 2651789	42		
19	8 2144019	8 220173	8 295605	8 2369460	8 2442080	8 2513507	8 2583779	8 2652933	41		
20	8 145304	8 221736	8 296810	8 2370680	8 443280	8 2514688	8 584941	8 2654076	40		
21	8 214658	8 2222998	8 298067	8 2371900	8 444480	8 515868	8 2586102	8 2655219	39		
22	8 214874	8 2224260	8 2 99327	8 2373120	8 445680	8 2517048	8 587 63	8 2656362	38		
23	8 2149158	8 22 5522	8 2300568	8 2374339	8 2446879	8 2518227	8 588424	8 2657504	37		
24	8 215044	8 2226781	8 2301807	8 2375558	8 2448077	8 2519107	8 2589584	8 658646	36		
25	8 151725	8 2228045	8 2303041	8 2376776	8 2411 76	8 520586	8 590744	8 2659788	35		
26	8 153008	8 2229305	8 301 86	8 377995	8 2450474	8 2521764	8 591904	8 2660929	34		
27	8 154 91	8 2230566	8 23055 5	8 379213	8 45167	8 522943	8 593063	8 266 071	33		
28	8 2155573	8 31821	8 2306763	8 380430	8 245 869	8 25 4121	8 2594223	8 2663212	32		
29	8 2156855	8 2 33085	8 308001	8 2381618	8 451066	8 25 5218	8 2595301	8 2664352	31		
30	8 2158137	8 2234315	8 309231	8 2382865	8 2455263	8 2526476	8 259654	8 66549	30		
31	8 2159418	8 2 35004	8 2310476	8 2384081	8 2456160	8 2, 27653	8 2597698	8 2666632	29		
32	8 2160699	8 2236862	8 2311713	8 385797	8 457656	8 528829	8 2598856	8 2667 ,	8		
33	8 2161979	8 2238120	8 2312950	8 2386513	8 2458852	8 2530066	8 2600014	8 2668911	27		
34	8 2163 59	8 2239378	8 2314186	8 2387729	8 2460047	8 53118	8 2601171	8 2670051	26		
35	8 2164539	8 2240635	8 2315422	8 2388944	8 461242	8 2532358	8 26023 8	8 2671189	5		
36	8 2165818	8 2241892	8 316658	8 2390159	8 246 437	8 533533	8 2603485	8 26723 8	24		
37	8 2167097	8 2243141	8 2317893	8 2391373	8 2463632	8 2534708	8 2604641	8 2673466	23		
38	8 21683 5	8 2244405	8 2319128	8 2392588	8 2464826	8 535883	8 2605797	8 2674604	22		
39	8 2169653	8 2245661	8 2320363	8 2393802	8 466020	8 2537058	8 2606953	8 675742	21		
40	8 170931	8 2246917	8 2321517	8 2395015	8 2467213	8 2538232	8 2608108	8 6768 920	20		
41	8 172209	8 224817	8 2322831	8 2396228	8 2468407	8 539406	8 2609263	8 2678016	19		
42	8 2173486	8 2249427	8 324064	8 2397441	8 2469599	8 2540519	8 2610418	8 2679153	18		
43	8 174762	8 2250681	8 2325217	8 2398654	8 24, 0792	8 541752	8 2611573	8 2680 89	17		
44	8 2176038	8 2251936	8 3 6530	8 2399866	8 2471984	8 2542925	8 612727	8 2681425	16		
45	8 2177314	8 2253190	8 23 7763	8 2401078	8 2473176	8 544098	8 2613881	8 2682561	15		
46	8 178590	8 2251143	8 23 8995	8 2402 8)	8 474368	8 2545 70	8 615034	8 2683696	14		
47	8 2179365	8 2255696	8 23 0227	8 2403500	8 2475559	8 2546442	8 2616188	8 2684832	13		
48	8 2181147	8 2257949	8 2331458	8 2404711	8 2476750	8 2547614	8 617341	8 2685967	12		
49	8 2182414	8 2 58201	8 2332689	8 2405922	8 2477940	8 2548785	8 618493	8 687101	11		
50	8 2183688	8 2259453	8 2333920	8 2407132	8 2479131	8 2549956	8 2619646	8 2688236	10		
51	8 2184962	8 260705	8 2335150	8 2408342	8 2480321	8 25511 7	8 2620798	8 2689370	9		
52	8 186 35	8 61956	8 2336380	8 409551	8 2481510	8 2552297	8 26 1950	8 690503	8		
53	8 2187508	8 2263207	8 2337610	8 410760	8 482699	8 2553167	8 26 3101	8 691637	7		
54	8 2188780	8 2264457	8 2338839	8 2411969	8 483888	8 2554637	8 624 5	8 692770	6		
55	8 2190053	8 2 65708	8 2340068	8 2413177	8 2485077	8 2555806	8 26 5403	8 2693903	5		
56	8 2191324	8 2266957	8 2341297	8 2414386	8 2486265	8 2556976	8 2626554	8 2695035	4		
57	8 2192596	8 2268207	8 23425 5	8 2415593	8 2487453	8 2558144	8 26 7704	8 2696168	3		
58	8 2193867	8 2269456	8 2343753	8 2416801	8 2488641	8 2559313	8 26 8854	8 2697300	2		
59	8 2195137	8 2270705	8 2344980	8 2418008	8 2489828	8 2560481	8 2630004	8 2698431	1		
60	8 2196108	8 2271953	8 346208	8 2419215	8 2491015	8 2561619	8 2631153	8 2699563	0		
11	3'	2'	1'	0'	59'	58'	57'	56'	11		

89 Deg I CO ANGLES

G g

88 Deg

(234)		I Deg		SINFS		I lb		9	
11	4'	5'	6'	7'	8'	9'	10'	11'	11
0	8 2698810	8 2766136	8 2832434	8 2897734	8 296206	8 3025460	8 3087941	8 3149536	60
1	8 2699941	8 2767449	8 2833530	8 2898814	8 2963131	8 3026509	8 3088975	8 3150555	59
2	8 2701071	8 2768562	8 2834616	8 2899894	8 2964195	8 3027556	8 3090009	8 3151574	58
3	8 2702201	8 2769675	8 2835722	8 2900974	8 2965259	8 3028606	8 3091042	8 3152593	57
4	8 2703331	8 2770787	8 2836818	8 2902053	8 2966322	8 3029654	8 3092075	8 3153611	56
5	8 2704461	8 2771900	8 2837913	8 2903132	8 2967385	8 3030702	8 3093108	8 3154630	55
6	8 2705590	8 2772811	8 2839008	8 2904211	8 2968448	8 3031749	8 3094140	8 3155648	54
7	8 2706719	8 2773923	8 2840103	8 2905289	8 2969511	8 3032796	8 3095173	8 3156665	53
8	8 2707847	8 2775034	8 2841197	8 2906367	8 2970573	8 3033843	8 3096205	8 3157683	52
9	8 2708976	8 2776145	8 2842291	8 2907445	8 2971635	8 3034890	8 3097237	8 3158700	51
10	8 2710104	8 2777256	8 2843386	8 2908523	8 2972697	8 3035937	8 3098268	8 3159717	50
11	8 2711232	8 2778367	8 2844479	8 2909600	8 2973759	8 3036983	8 3099299	8 3160734	49
12	8 2712350	8 2779477	8 2845575	8 2910677	8 2974820	8 3038029	8 3100330	8 3161751	48
13	8 2713486	8 2780587	8 2846666	8 2911751	8 2975881	8 3039075	8 3101361	8 3162767	47
14	8 2714613	8 2781696	8 2847759	8 2912831	8 2976942	8 3040120	8 3102392	8 3163783	46
15	8 2715740	8 2782806	8 2848851	8 2913907	8 2978002	8 3041165	8 3103422	8 3164799	45
16	8 2716866	8 2783915	8 2849943	8 2914983	8 2979063	8 3042210	8 3104452	8 3165815	44
17	8 2717992	8 2785023	8 2851035	8 2916059	8 2980123	8 3043255	8 3105482	8 3166832	43
18	8 2719118	8 2786132	8 2852127	8 2917134	8 2981183	8 3044300	8 3106512	8 3167849	42
19	8 2720243	8 2787240	8 2853219	8 2918210	8 2982244	8 3045344	8 3107541	8 3168866	41
20	8 2721368	8 2788348	8 2854310	8 2919285	8 2983301	8 3046388	8 3108570	8 3169875	40
21	8 2722493	8 2789456	8 2855401	8 2920359	8 2984360	8 3047431	8 3109599	8 3170889	39
22	8 2723618	8 2790563	8 2856491	8 2921434	8 2985419	8 3048475	8 3110628	8 3171903	38
23	8 2724742	8 2791670	8 2857582	8 2922508	8 2986477	8 3049518	8 3111656	8 3172917	37
24	8 2725866	8 2792777	8 2858672	8 2923582	8 2987536	8 3050561	8 3112684	8 3173931	36
25	8 2726990	8 2793883	8 2859762	8 2924656	8 2988594	8 3051604	8 3113712	8 3174945	35
26	8 2728113	8 2794989	8 2860851	8 2925729	8 2989651	8 3052646	8 3114740	8 3175958	34
27	8 2729236	8 2796093	8 2861941	8 2926802	8 2990709	8 3053688	8 3115767	8 3176971	33
28	8 2730359	8 2797101	8 2863030	8 2927875	8 2991766	8 3054730	8 3116794	8 3177984	32
29	8 2731481	8 2798206	8 2864118	8 2928948	8 2992823	8 3055772	8 3117821	8 3178997	31
30	8 2732604	8 2799311	8 2865207	8 2930020	8 2993879	8 3056813	8 3118848	8 3180008	30
31	8 2733725	8 2800416	8 2866295	8 2931092	8 2994936	8 3057855	8 3119871	8 3181021	29
32	8 2734847	8 2801521	8 2867383	8 2932164	8 2995992	8 3058896	8 3120901	8 3182032	28
33	8 2735968	8 2802625	8 2868471	8 2933235	8 2997048	8 3059936	8 3121927	8 3183044	27
34	8 2737089	8 2803729	8 2869558	8 2934306	8 2998104	8 3060977	8 3122952	8 3184055	26
35	8 2738210	8 2804833	8 2870645	8 2935378	8 2999159	8 3062017	8 3123978	8 3185066	25
36	8 2739331	8 2805936	8 2871732	8 2936448	8 3000214	8 3063057	8 3125003	8 3186077	24
37	8 2740451	8 2807039	8 2872818	8 2937519	8 3001269	8 3064097	8 3126028	8 3187088	23
38	8 2741571	8 2808142	8 2873905	8 2938589	8 3002324	8 3065136	8 3127053	8 3188098	22
39	8 2742690	8 2809245	8 2874991	8 2939659	8 3003378	8 3066175	8 3128077	8 3189109	21
40	8 2743810	8 2810347	8 2876076	8 2940729	8 3004432	8 3067214	8 3129101	8 3190119	20
41	8 2744929	8 2811449	8 2877162	8 2941798	8 3005486	8 3068253	8 3130125	8 3191128	19
42	8 2746048	8 2812550	8 2878247	8 2942867	8 3006539	8 3069291	8 3131149	8 3192138	18
43	8 2747166	8 2813652	8 2879332	8 2943936	8 3007593	8 3070330	8 3132173	8 3193147	17
44	8 2748281	8 2814753	8 2880417	8 2945005	8 3008646	8 3071368	8 3133196	8 3194156	16
45	8 2749400	8 2815854	8 2881501	8 2946073	8 3009699	8 3072405	8 3134219	8 3195165	15
46	8 2750520	8 2816955	8 2882585	8 2947141	8 3010751	8 3073443	8 3135242	8 3196173	14
47	8 2751637	8 2818055	8 2883669	8 2948209	8 3011804	8 3074481	8 3136264	8 3197182	13
48	8 2752754	8 2819155	8 2884752	8 2949277	8 3012856	8 3075517	8 3137287	8 3198190	12
49	8 2753871	8 2820255	8 2885836	8 2950344	8 3013907	8 3076554	8 3138309	8 3199198	11
50	8 2754987	8 2821354	8 2886919	8 2951411	8 3014959	8 3077590	8 3139331	8 3200205	10
51	8 2756103	8 2822453	8 2888002	8 2952478	8 3016010	8 3078626	8 3140352	8 3201213	9
52	8 2757219	8 2823552	8 2889084	8 2953544	8 3017061	8 3079662	8 3141374	8 3202220	8
53	8 2758335	8 2824651	8 2890166	8 2954611	8 3018112	8 3080698	8 3142395	8 3203227	7
54	8 2759450	8 2825749	8 2891248	8 2955677	8 3019163	8 3081734	8 3143416	8 3204233	6
55	8 2760565	8 2826847	8 2892330	8 2956742	8 3020213	8 3082769	8 3144436	8 3205240	5
56	8 2761680	8 2827945	8 2893411	8 2957808	8 3021263	8 3083804	8 3145457	8 3206246	4
57	8 2762794	8 2829043	8 2894492	8 2958873	8 3022313	8 3084839	8 3146477	8 3207252	3
58	8 2763909	8 2830140	8 2895573	8 2959938	8 3023362	8 3085873	8 3147497	8 3208258	2
59	8 2765022	8 2831237	8 2896654	8 2961003	8 3024411	8 3086907	8 3148516	8 3209263	1
60	8 2766136	8 2832334	8 2897734	8 2962067	8 3025460	8 3087941	8 3149536	8 3210269	0
11	55'	54'	53'	52'	51'	50'	49'	48'	11

COSINES

88 Deg.

1 Deg		SINUS										(-35)
17	4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'	15'
0	8 2699563	8 2766912	8 833234	8 2898559	8 96-917	8 3026335	8 3088842	8 3150462	60			
1	8 2700191	8 2768026	8 2834331	8 2899640	8 963981	8 3027385	8 3089876	8 3151482	59			
2	8 2701825	8 2769131	8 2835128	8 2900720	8 965046	8 3028133	8 3090910	8 3152501	58			
3	8 2703555	8 2770533	8 283654	8 2901800	8 966110	8 3029482	8 3091944	8 3153505	57			
4	8 2705285	8 2771365	8 28376	8 2902879	8 967174	8 3030531	8 3092977	8 3154519	56			
5	8 2707015	8 2772178	8 283816	8 2903959	8 968237	8 3031579	8 3094010	8 3155558	55			
6	8 2708745	8 277299	8 2839211	8 2905038	8 969300	8 303267	8 3095043	8 3156576	54			
7	8 2710474	8 277370	8 2840906	8 2906117	8 970363	8 3033674	8 309606	8 3157595	53			
8	8 2712203	8 277441	8 2842001	8 2907195	8 971426	8 30347	8 3097109	8 3158613	52			
9	8 2713933	8 277512	8 2843096	8 2908274	8 972489	8 3035769	8 3098141	8 3159630	51			
10	8 2715662	8 2775836	8 2844190	8 2909352	8 973551	8 3036816	8 3099173	8 3160648	50			
11	8 2717391	8 2776547	8 2845284	8 2910430	8 974613	8 303786	8 3100205	8 3161665	49			
12	8 2719121	8 277725	8 2846378	8 2911507	8 975675	8 3038907	8 3101236	8 3162682	48			
13	8 2720850	8 277796	8 2847471	8 2912584	8 976736	8 3039955	8 3102267	8 3163699	47			
14	8 2722580	8 277867	8 2848565	8 2913661	8 977797	8 3041001	8 3103298	8 3164715	46			
15	8 2724309	8 277938	8 2849658	8 2914738	8 978858	8 3042046	8 3104329	8 3165732	45			
16	8 2726039	8 2780097	8 2850750	8 2915815	8 979919	8 3043092	8 3105360	8 3166748	44			
17	8 2727768	8 2780806	8 2851843	8 2916891	8 980980	8 3044137	8 3106390	8 3167764	43			
18	8 2729498	8 2781515	8 2852935	8 2917967	8 982040	8 3045182	8 3107420	8 3168779	42			
19	8 2731227	8 2782224	8 2854027	8 2919042	8 983100	8 3046226	8 3108450	8 3169795	41			
20	8 2732957	8 2782932	8 2855118	8 2920118	8 984159	8 3047271	8 3109480	8 3170810	40			
21	8 2734686	8 2783640	8 2856210	8 2921193	8 985219	8 3048315	8 3110508	8 3171825	39			
22	8 2736416	8 2784348	8 2857301	8 2922268	8 986278	8 3049359	8 3111538	8 3172839	38			
23	8 2738145	8 2785055	8 2858392	8 2923342	8 987337	8 3050403	8 3112566	8 3173854	37			
24	8 2739875	8 2785763	8 2859482	8 2924417	8 988395	8 3051446	8 3113595	8 3174868	36			
25	8 2741604	8 2786470	8 286057	8 2925491	8 989454	8 3052489	8 3114625	8 3175882	35			
26	8 2743334	8 2787178	8 286166	8 2926565	8 990511	8 3053532	8 3115651	8 3176895	34			
27	8 2745063	8 2787887	8 2862752	8 2927638	8 991570	8 3054575	8 3116679	8 3177909	33			
28	8 2746793	8 2788595	8 2863841	8 2928711	8 992628	8 3055617	8 3117707	8 3178922	32			
29	8 2748522	8 2789304	8 2864931	8 2929784	8 993685	8 3056659	8 3118731	8 3179935	31			
30	8 2750252	8 2790012	8 2866019	8 2930857	8 994741	8 3057701	8 3119761	8 3180948	30			
31	8 2751981	8 2790720	8 2867108	8 2931930	8 995799	8 3058743	8 3120788	8 3181960	29			
32	8 2753711	8 2791428	8 2868196	8 2933002	8 996855	8 3059784	8 3121815	8 3182973	28			
33	8 2755440	8 2792136	8 2869284	8 2934074	8 997911	8 3060825	8 3122841	8 3183985	27			
34	8 2757170	8 2792844	8 2870372	8 2935145	8 998967	8 3061866	8 3123867	8 3184999	26			
35	8 2758900	8 2793552	8 2871460	8 2936217	8 999923	8 3062907	8 3124893	8 3186008	25			
36	8 2760629	8 2794260	8 2872547	8 2937288	8 1000079	8 3063947	8 3125919	8 3187010	24			
37	8 2762359	8 2794968	8 2873635	8 2938359	8 1001134	8 3064987	8 3126945	8 3188031	23			
38	8 2764088	8 2795676	8 2874720	8 2939429	8 1002189	8 3066027	8 3127971	8 3189041	22			
39	8 2765818	8 2796384	8 2875807	8 2940500	8 1003244	8 3067067	8 3128997	8 3190052	21			
40	8 2767547	8 2797092	8 2876893	8 2941570	8 1004298	8 3068106	8 3130023	8 3191062	20			
41	8 2769277	8 2797800	8 2877979	8 2942640	8 1005353	8 3069145	8 3131049	8 3192073	19			
42	8 2771006	8 2798508	8 2879065	8 2943709	8 1006407	8 3070184	8 3132075	8 3193083	18			
43	8 2772736	8 2799216	8 2880150	8 2944779	8 1007461	8 3071223	8 3133102	8 3194092	17			
44	8 2774465	8 2800024	8 2881235	8 2945848	8 1008515	8 3072261	8 3134129	8 3195102	16			
45	8 2776195	8 2800732	8 2882320	8 2946916	8 1009569	8 3073299	8 3135156	8 3196111	15			
46	8 2777924	8 2801440	8 2883404	8 2947985	8 1010623	8 3074337	8 3136182	8 3197120	14			
47	8 2779654	8 2802148	8 2884488	8 2949053	8 1011677	8 3075375	8 3137209	8 3198129	13			
48	8 2781383	8 2802856	8 2885572	8 2950121	8 1012731	8 3076412	8 3138235	8 3199137	12			
49	8 2783113	8 2803564	8 2886656	8 2951189	8 1013785	8 3077449	8 3139262	8 3200145	11			
50	8 2784842	8 2804272	8 2887740	8 2952257	8 1014839	8 3078486	8 3140289	8 3201154	10			
51	8 2786572	8 2804980	8 2888823	8 2953324	8 1015893	8 3079523	8 3141315	8 3202161	9			
52	8 2788301	8 2805688	8 2889906	8 2954391	8 1016947	8 3080560	8 3142342	8 3203169	8			
53	8 2789999	8 2806396	8 2890988	8 2955457	8 1017991	8 3081596	8 3143368	8 3204176	7			
54	8 2791728	8 2807104	8 2892071	8 2956524	8 1019045	8 3082633	8 3144395	8 3205183	6			
55	8 2793457	8 2807812	8 2893153	8 2957590	8 1020099	8 3083669	8 3145421	8 3206190	5			
56	8 2795186	8 2808520	8 2894235	8 2958656	8 1021153	8 3084703	8 3146448	8 3207197	4			
57	8 2796915	8 2809228	8 2895316	8 2959721	8 1022207	8 3085738	8 3147474	8 3208203	3			
58	8 2798644	8 2809936	8 2896397	8 2960787	8 1023261	8 3086773	8 3148500	8 3209210	2			
59	8 2799999	8 2810644	8 2897478	8 2961852	8 1024315	8 3087807	8 3149526	8 3210215	1			
60	8 2801728	8 2811352	8 2898559	8 2962917	8 1025369	8 3088842	8 3150552	8 3211221	0			
71	55'	51'	53'	52'	51'	50'	49'	48'	71			

COTANGENTS

G g 2

68 Deg

(236)		1 Deg.		SINES					Tab. 9	
		12'	13'	14'	15'	16'	17'	18'	19'	20'
0	8	3-10269	3270103	3329243	33875-9	3445043	3501805	3557835	3613150	60
1	8	3211274	3271155	3330221	3388494	3445995	3502745	3558762	3614066	59
2	8	3212273	3272146	3331199	3389459	3446947	3503685	3559690	3614981	58
3	8	3213-83	3273137	3332176	3390423	3447899	3504624	3560617	3615897	57
4	8	3214287	3274127	3333153	3391387	3448851	3505563	3561544	3616813	56
5	8	3215292	3275118	3334130	3392351	3449802	3506502	3562471	3617728	55
6	8	3216-95	3276108	3335107	3393315	3450753	3507441	3563398	3618643	54
7	8	3-17299	3277098	3336084	3394279	3451704	3508379	3564324	3619558	53
8	8	3218303	3278087	3337060	3395242	3452655	3509318	3565251	3620472	52
9	8	3219306	3279077	3338036	3396205	3453605	3510256	3566177	3621387	51
10	8	3-20309	3280066	3339012	3397168	3454555	3511194	3567103	3622301	50
11	8	3221311	3281055	3339988	3398131	3455505	3512132	3568029	3623215	49
12	8	3222314	3282044	3340963	3399093	3456455	3513069	3568954	3624129	48
13	8	3223316	3283032	3341938	3400055	3457405	3514006	3569880	3625042	47
14	8	3224318	3284021	3342913	3401018	3458354	3514944	3570805	3625956	46
15	8	32-5320	3-85009	3343888	3401979	3459304	3515881	3571730	3626869	45
16	8	3226322	3-85997	3344863	3402941	3460253	3516817	3572654	3627782	44
17	8	32273-3	3286981	3345837	3403902	3461201	3517754	3573579	3628695	43
18	8	3-3324	3287972	3346811	3404864	3462150	3518690	3574503	3629608	42
19	8	32-9325	3288959	3347785	3405825	3463098	3519626	3575427	3630520	41
20	8	32303-6	3289946	3348759	3406785	3464047	3520562	3576351	3631433	40
21	8	32313-6	3290933	3349732	3407746	3464995	3521498	3577275	3632345	39
22	8	32323-6	3291919	3350706	3408706	3465942	3522433	3578199	3633257	38
23	8	32333-6	3292906	3351679	3409666	3466890	3523369	3579122	3634169	37
24	8	3-34376	3293892	3352651	3410626	3467837	3524304	3580045	3635080	36
25	8	3-353-5	3294878	3353624	3411586	3468784	3525239	3580968	3635991	35
26	8	3236375	3295863	3354597	3412546	3469731	3526173	3581891	3636903	34
27	8	3-37324	3296849	3355569	3413505	3470678	3527108	3582814	3637814	33
28	8	3-38322	3297834	3356541	3414464	3471625	3528042	3583736	3638724	32
29	8	3239321	3-98819	3357511	3415423	3472571	3528976	3584656	3639635	31
30	8	3240319	3299804	3358484	3416382	3473517	3529910	3585580	3640545	30
31	8	3-41317	3300788	3359455	3417340	3474463	3530844	3586501	3641456	29
32	8	3-42315	3301773	3360426	3418298	3475409	3531778	3587424	3642366	28
33	8	3-43313	3302757	3361397	3419256	3476354	3532711	3588345	3643275	27
34	8	3244310	3303740	3362368	3420214	3477300	3533644	3589266	3644185	26
35	8	3-15308	3304724	3363338	3421172	3478245	3534577	3590188	3645095	25
36	8	3246305	3305708	3364309	3422129	3479189	3535510	3591108	3646001	24
37	8	3247301	3306691	3365279	3423086	3480134	3536442	3592029	3646913	23
38	8	3248298	3307674	3366248	3424043	3481079	3537374	3592949	3647822	22
39	8	3249294	3308656	3367218	3425000	3482023	3538306	3593870	3648730	21
40	8	3250290	3309639	3368187	3425957	3482967	3539238	3594790	3649639	20
41	8	3251286	3310621	3369156	3426913	3483911	3540170	3595709	3650547	19
42	8	3252282	3311603	3370125	3427869	3484854	3541102	3596629	3651455	18
43	8	3253277	3312585	3371094	3428825	3485798	3542033	3597549	3652363	17
44	8	3254272	3313567	3372063	3429781	3486741	3542964	3598468	3653271	16
45	8	3255267	3314548	3373031	3430736	3487684	3543895	3599387	3654179	15
46	8	3256262	3315529	3373999	3431691	3488627	3544826	3600306	3655086	14
47	8	3257256	3316510	3374967	3432646	3489570	3545756	3601225	3655993	13
48	8	3258250	3317491	3375934	3433601	3490512	3546686	3602143	3656900	12
49	8	3259244	3318472	3376902	3434556	3491454	3547617	3603061	3657807	11
50	8	3260238	3319452	3377869	3435510	3492396	3548546	3603979	3658713	10
51	8	3261232	3320433	3378836	3436465	3493338	3549476	3604897	3659620	9
52	8	3262225	3321411	3379803	3437419	3494280	3550406	3605815	3660526	8
53	8	3263218	3322392	3380769	3438372	3495221	3551335	3606733	3661432	7
54	8	3264211	3323371	3381736	3439326	3496162	3552264	3607650	3662338	6
55	8	3265204	3324350	3382702	3440279	3497103	3553193	3608567	3663244	5
56	8	3266196	3325329	3383668	3441233	3498044	3554122	3609484	3664149	4
57	8	3267188	3326308	3384633	3442186	3498985	3555050	3610401	3665054	3
58	8	3-68180	3327287	3385599	3443138	3499925	3555979	3611317	3665959	2
59	8	3269172	3328265	3386564	3444091	3500865	3556907	3612234	3666861	1
60	8	3-70163	3329243	3387521	3445043	3501805	3557835	3613150	3667767	0
71		47'	46'	45'	44'	43'	42'	41'	40'	71

COSINES.

88 Deg.

1 Dec		TANGENTS								(-37)
11	12	13	14	15	16	17	18	19	20	
0	8 3 11221	8 3 71143	8 3330 49	8 3388503	8 3446105	8 3502895	8 3558953	8 3614 97	60	
1	8 321	8 3272134	8 3331228	8 3309528	8 3447051	8 3503835	8 3559881	8 3615213	59	
2	8 321323	8 32731 6	8 333 206	8 3390493	8 3448010	8 3504775	8 3560809	8 36161 9	58	
3	8 3214237	8 3274117	8 333184	8 3391458	8 3448962	8 3505715	8 3561737	8 3617045	57	
4	8 3215 42	8 3 75105	8 3334101	8 339 423	8 3449914	8 3506655	8 3562664	8 3617961	56	
5	8 3216 16	8 3275099	8 3335139	8 3393387	8 3450866	8 3507594	8 3563592	8 3618877	55	
6	8 3 17 51	8 3276090	8 3336116	8 3394351	8 3451817	8 3508533	8 3564519	8 3619793	54	
7	8 3218255	8 3278080	8 3337093	8 3395316	8 3452769	8 350947	8 3565446	8 3620708	53	
8	8 3219259	8 3 19070	8 3338070	8 3396 79	8 3453720	8 3510411	8 3566373	8 3621623	52	
9	8 3220262	8 3280060	8 3339046	8 3397243	8 3454671	8 3511350	8 3567299	8 3622538	51	
10	8 3 1266	8 3281050	8 3340023	8 3398206	8 3455621	8 3512288	8 3568226	8 3623453	50	
11	8 32 2269	8 3282039	8 3340999	8 3399169	8 3456572	8 3513226	8 3569152	8 3624367	49	
12	8 3 327	8 3283028	8 3341975	8 3400132	8 34575	8 3514164	8 3570078	8 3625281	48	
13	8 3 4 71	8 3 84017	8 3342950	8 3401095	8 3458472	8 3515102	8 3571004	8 3626196	47	
14	8 3 25277	8 3 85006	8 3343926	8 3402058	8 3459422	8 3516040	8 3571929	8 3627110	46	
15	8 3 26 79	8 3285995	8 3344901	8 3403020	8 3460372	8 3516977	8 3572855	8 3628023	45	
16	8 32 1281	8 3 86983	8 3345876	8 3403982	8 3461321	8 3517914	8 3573780	8 3628937	44	
17	8 3228283	8 3 87971	8 3346851	8 3404941	8 3462271	8 3518851	8 3574705	8 3629850	43	
18	8 3229285	8 3288959	8 3347826	8 3405906	8 3463220	8 3519788	8 3575630	8 3630763	42	
19	8 3230 86	8 3289947	8 3348800	8 3406867	8 3464169	8 3520725	8 3576555	8 3631676	41	
20	8 3 31287	8 3290934	8 3349774	8 34078 8	8 3465117	8 3521661	8 3577479	8 3632589	40	
21	8 3 32288	8 3291921	8 3350748	8 3408789	8 3466066	8 352259	8 3578403	8 3633502	39	
22	8 3233 88	8 3 92908	8 33517	8 3409750	8 3467014	8 3523533	8 35793 7	8 3634414	38	
23	8 3234289	8 3293895	8 3352695	8 3410711	8 3467962	8 3524469	8 3580 51	8 3635327	37	
24	8 3 35 89	8 3294882	8 3353669	8 3411671	8 3468910	8 3525405	8 3581175	8 3636239	36	
25	8 3236289	8 3295868	8 3354612	8 341 631	8 3469857	8 3526340	8 3582098	8 3637150	35	
26	8 3 37289	8 3296854	8 3355615	8 3413591	8 3470805	8 3527275	8 3583022	8 363806	34	
27	8 3238288	8 3297840	8 3356587	8 3414551	8 3471752	8 3528210	8 3583945	8 3638974	33	
28	8 3239 87	8 3298826	8 3357560	8 3415511	8 3472699	8 3529145	8 3584868	8 3639885	32	
29	8 3 10 86	8 3299811	8 3358532	8 3416470	8 3473646	8 3530080	8 3585790	8 3640796	31	
30	8 3241 85	8 3300796	8 3359504	8 34174 9	8 3474592	8 3531014	8 3586713	8 3641707	30	
31	8 3 42 84	8 3301781	8 3360476	8 3418388	8 3475539	8 3531948	8 3587635	8 364261	29	
32	8 3243 8	8 3302766	8 3361447	8 3419347	8 3476485	8 353288	8 3588557	8 3643528	28	
33	8 3244 80	8 3303751	8 3362419	8 3420305	8 3477431	8 3533816	8 3589479	8 3644438	27	
34	8 3245278	8 3304735	8 3363390	8 3421263	8 3478377	8 3534750	8 3590401	8 3645348	26	
35	8 3246276	8 3305719	8 3364361	8 342 21	8 3479322	8 3535683	8 3591322	8 3646258	25	
36	8 3247273	8 3306703	8 3365331	8 3423179	8 3480268	8 3536616	8 3592243	8 3647168	24	
37	8 3248270	8 3307687	8 3366302	8 3424137	8 3481213	8 3537549	8 3593165	8 3648078	23	
38	8 3 49267	8 3308670	8 3367272	8 3425094	8 3482158	8 353848	8 3594086	8 3648987	22	
39	8 3 50264	8 3309653	8 3368 42	8 3426052	8 3483103	8 3539414	8 3595006	8 3649896	21	
40	8 3251 60	8 3310636	8 3369 12	8 3427009	8 3484047	8 3540347	8 3595927	8 3650805	20	
41	8 3252 57	8 3311619	8 3370181	8 3427965	8 3484991	8 3541279	8 3596847	8 3651714	19	
42	8 3 53253	8 331 601	8 3371151	8 3428922	8 3485936	8 3542211	8 3597767	8 3652623	18	
43	8 3254 49	8 3313584	8 3372120	8 3429878	8 3486879	8 3543143	8 3598687	8 3653531	17	
44	8 3255244	8 3314566	8 3373089	8 3430835	8 3487823	8 3544074	8 3599607	8 3654439	16	
45	8 3256240	8 3315548	8 3374058	8 3431791	8 3488767	8 3545006	8 3600527	8 3655347	15	
46	8 3257235	8 3316529	8 3375026	8 3432746	8 3489710	8 3545937	8 3601446	8 3656255	14	
47	8 3 58230	8 3317511	8 3375994	8 3433702	8 3490653	8 3546868	8 3602365	8 3657163	13	
48	8 3259224	8 3318492	8 3376963	8 3434657	8 3491596	8 3547799	8 3603284	8 3658070	12	
49	8 3260219	8 3319473	8 3377930	8 3435612	8 3492539	8 3548729	8 3604203	8 3658978	11	
50	8 3 61213	8 3320454	8 3378898	8 3436567	8 3493481	8 3549660	8 3605121	8 3659885	10	
51	8 3262207	8 3321434	8 3379866	8 3437522	8 3494423	8 3550590	8 3606040	8 3660792	9	
52	8 3263201	8 3322415	8 3380833	8 3438476	8 3495365	8 3551520	8 3606958	8 3661698	8	
53	8 3264194	8 3323395	8 3381800	8 3439431	8 3496307	8 3552450	8 3607876	8 3662605	7	
54	8 3265188	8 3324375	8 3382767	8 3440385	8 3497249	8 3553379	8 3608794	8 3663511	6	
55	8 3 66181	8 3325351	8 3383733	8 3441339	8 3498191	8 3554309	8 3609711	8 3664417	5	
56	8 3 6 173	8 3326331	8 3384700	8 3442292	8 3499133	8 3555238	8 3610629	8 3665323	4	
57	8 3268166	8 3327313	8 3385666	8 3443246	8 3500073	8 3556167	8 3611546	8 3666229	3	
58	8 3 69158	8 33 8 12	8 3386632	8 3444199	8 3501014	8 3557096	8 3612463	8 3667135	2	
59	8 3 10151	8 3329271	8 3387597	8 3445152	8 3501954	8 3558024	8 3613380	8 3668040	1	
60	8 3 11133	8 3330 13	8 3388563	8 3446105	8 3502895	8 3558953	8 3614297	8 3668945	0	
11	12'	46'	45'	44'	43'	42'	41'	40'	11	

(238)		r Deg		SINUS					Tab	
11	20'	21'	22'	23'	24'	25'	26'	27'	28'	29'
0	3667769	3721710	3774988	3827000	3877962	3927865	3976710	4024500	4071240	4116940
1	3668674	3722603	3775870	3827842	3878803	3928706	3977551	4025341	4072081	4117781
2	3669575	3723496	3776753	3828725	3879686	3929589	3978434	4026220	4072960	4118660
3	3670472	3724389	3777635	3829608	3880569	3930472	3979317	4027099	4073839	4119539
4	3671368	3725282	3778517	3830491	3881452	3931355	3980200	4027978	4074718	4120418
5	3672260	3726174	3779399	3831374	3882335	3932243	3981083	4028857	4075597	4121297
6	3673151	3727067	3780282	3832257	3883218	3933131	3981966	4029736	4076476	4122176
7	3674047	3727959	3781161	3833140	3884101	3934019	3982849	4030615	4077355	4123055
8	3674940	3728851	3782044	3834023	3884984	3934907	3983732	4031494	4078234	4123934
9	3675832	3729743	3782927	3834906	3885867	3935795	3984615	4032373	4079113	4124813
10	3676724	3730635	3783810	3835789	3886750	3936683	3985498	4033252	4080000	4125692
11	3677616	3731528	3784693	3836672	3887633	3937571	3986381	4034131	4080879	4126571
12	3678508	3732420	3785576	3837555	3888516	3938459	3987264	4035010	4081758	4127450
13	3679399	3733313	3786459	3838438	3889399	3939347	3988147	4035889	4082637	4128329
14	3680291	3734205	3787342	3839321	3890282	3940235	3989030	4036768	4083516	4129208
15	3681182	3735098	3788225	3840204	3891165	3941123	3989913	4037647	4084395	4130087
16	3682074	3735990	3789108	3841087	3892048	3942011	3990796	4038526	4085274	4130966
17	3682966	3736883	3790000	3841970	3892931	3942899	3991679	4039405	4086153	4131845
18	3683858	3737775	3790883	3842853	3893814	3943787	3992562	4040284	4087032	4132724
19	3684750	3738668	3791766	3843736	3894697	3944675	3993445	4041163	4087911	4133603
20	3685642	3739560	3792649	3844619	3895580	3945563	3994328	4042042	4088790	4134482
21	3686534	3740453	3793532	3845502	3896463	3946451	3995211	4042921	4089669	4135361
22	3687426	3741345	3794415	3846385	3897346	3947339	3996094	4043800	4090548	4136240
23	3688318	3742238	3795298	3847268	3898229	3948227	3996977	4044679	4091427	4137119
24	3689210	3743130	3796181	3848151	3899112	3949115	3997860	4045558	4092306	4138000
25	3690102	3744023	3797064	3849034	3900000	3950000	3998743	4046437	4093185	4138879
26	3690994	3744915	3797947	3849917	3900883	3950883	3999626	4047316	4094064	4139758
27	3691886	3745808	3798830	3850800	3901766	3951766	4000509	4048195	4094943	4140637
28	3692778	3746700	3799713	3851683	3902649	3952649	4001392	4049074	4095822	4141516
29	3693670	3747593	3800596	3852566	3903532	3953532	4002275	4049953	4096701	4142395
30	3694562	3748485	3801479	3853449	3904415	3954415	4003158	4050832	4097580	4143274
31	3695454	3749378	3802362	3854332	3905298	3955298	4004041	4051711	4098459	4144153
32	3696346	3750270	3803245	3855215	3906181	3956181	4004924	4052590	4099338	4145032
33	3697238	3751163	3804128	3856098	3907064	3957064	4005807	4053469	4100217	4145911
34	3698130	3752055	3805011	3856981	3907947	3957947	4006690	4054348	4101096	4146790
35	3699022	3752948	3805894	3857864	3908830	3958830	4007573	4055227	4101975	4147669
36	3700000	3753840	3806777	3858747	3909713	3959713	4008456	4056106	4102854	4148548
37	3700883	3754733	3807660	3859630	3910596	3960596	4009339	4056985	4103733	4149427
38	3701766	3755625	3808543	3860513	3911479	3961479	4010222	4057864	4104612	4150306
39	3702649	3756518	3809426	3861396	3912362	3962362	4011105	4058743	4105491	4151185
40	3703532	3757410	3810309	3862279	3913245	3963245	4011988	4059622	4106370	4152064
41	3704415	3758303	3811192	3863162	3914128	3964128	4012871	4060501	4107249	4152943
42	3705298	3759195	3812075	3864045	3915011	3965011	4013754	4061380	4108128	4153822
43	3706181	3760088	3812958	3864928	3915894	3965894	4014637	4062259	4109007	4154701
44	3707064	3760980	3813841	3865811	3916777	3966777	4015520	4063138	4109886	4155580
45	3707947	3761873	3814724	3866694	3917660	3967660	4016403	4064017	4110765	4156459
46	3708830	3762765	3815607	3867577	3918543	3968543	4017286	4064896	4111644	4157338
47	3709713	3763658	3816490	3868460	3919426	3969426	4018169	4065775	4112523	4158217
48	3710596	3764550	3817373	3869343	3920309	3970309	4019052	4066654	4113402	4159096
49	3711479	3765443	3818256	3870226	3921192	3971192	4019935	4067533	4114281	4160000
50	3712362	3766335	3819139	3871109	3922075	3972075	4020818	4068412	4115160	4160900
51	3713245	3767228	3820022	3871992	3922958	3972958	4021701	4069291	4116039	4161800
52	3714128	3768120	3820905	3872875	3923841	3973841	4022584	4070170	4116918	4162700
53	3715011	3769013	3821788	3873758	3924724	3974724	4023467	4071049	4117797	4163600
54	3715894	3769905	3822671	3874641	3925607	3975607	4024350	4071928	4118676	4164500
55	3716777	3770798	3823554	3875524	3926490	3976490	4025233	4072807	4119555	4165400
56	3717660	3771690	3824437	3876407	3927373	3977373	4026116	4073686	4120434	4166300
57	3718543	3772583	3825320	3877290	3928256	3978256	4027000	4074565	4121313	4167200
58	3719426	3773475	3826203	3878173	3929139	3979139	4027883	4075444	4122192	4168100
59	3720309	3774368	3827086	3879056	3930022	3980022	4028766	4076323	4123071	4169000
60	3721192	3775260	3827969	3879939	3930905	3980905	4029649	4077202	4123950	4169900
61	3722075	3776153	3828852	3880822	3931788	3981788	4030532	4078081	4124829	4170800
62	3722958	3777045	3829735	3881705	3932671	3982671	4031415	4078960	4125708	4171700
63	3723841	3777938	3830618	3882588	3933554	3983554	4032298	4079839	4126587	4172600
64	3724724	3778830	3831501	3883471	3934437	3984437	4033181	4080718	4127466	4173500
65	3725607	3779723	3832384	3884354	3935320	3985320	4034064	4081597	4128345	4174400
66	3726490	3780615	3833267	3885237	3936203	3986203	4034947	4082476	4129224	4175300
67	3727373	3781508	3834150	3886120	3937086	3987086	4035830	4083355	4130103	4176200
68	3728256	3782400	3835033	3887003	3937969	3987969	4036713	4084234	4130982	4177100
69	3729139	3783293	3835916	3887886	3938852	3988852	4037596	4085113	4131861	4178000
70	3730022	3784185	3836799	3888769	3939735	3989735	4038479	4085992	4132740	4178900
71	3730905	3785078	3837682	3889652	3940618	3990618	4039362	4086871	4133619	4179800
72	3731788	3785970	3838565	3890535	3941501	3991501	4040245	4087750	4134498	4180700
73	3732671	3786863	3839448	3891418	3942384	3992384	4041128	4088629	4135377	4181600
74	3733554	3787755	3840331	3892301	3943267	3993267	4042011	4089508	4136256	4182500
75	3734437	3788648	3841214	3893184	3944150	3994150	4042894	4090387	4137135	4183400
76	3735320	3789540	3842097	3894067	3945033	3995033	4043777	4091266	4138014	4184300
77	3736203	3790433	3842980	3894950	3945916	3995916	4044660	4092145	4138893	4185200
78	3737086	3791325	3843863	3895833	3946799	3996799	4045543	4093024	4139772	4186100
79	3737969	3792218	3844746	3896716	3947682	3997682	4046426	4093903	4140651	4187000
80	3738852	3793110	3845629	3897599	3948565	3998565	4047309	4094782	4141530	4187900
81	3739735	3794003	3846512	3898482	3949448	3999448	4048192	4095661	4142409	4188800
82	3740618	3794895	3847395	3899365	3950331	4000331	4049075	4096540	4143288	4189700
83	3741501	3795788	3848278	3900248	3951214	4001214	4049958	4097419	4144167	4190600
84	3742384	3796680	3849161	3901131	3952097	4002097	4050841	4098298	4145046	4191500
85	3743267	3797573	3850044	3902014	3952980	4002980	4051724	4099177	4145925	4192400
86	3744150	3798465	3850927	3902897	3953863	4003863	4052607	4100056	4146804	4193300
87	3745033	3799358	3851810	3903780	3954746	4004746	4053490	4100935	4147683	4194200
88	3745916	3800250	3852693	3904663	3955629	4005629	4054373	4101814	4148562	4195100
89	3746799	3801143	3853576	3905546	3956512	4006512	4055256	4102693	4149441	4196000
90	3747682	3802035	3854459	3906429	3957395	4007395	4056139	4103572	4150320	4196900
91	3748565	3802928	3855342	3907312	3958278	4008278	4057022	4104451	4151200	4197800
92										

1 Deg		LANCENIS										(239)
//	20'	21'	22'	23'	24'	25'	26'	27'	//			
0	3 3668915	8 3722915	3 37762 3	8 3828886	3 360918	8 3323336	8 398315	8 4035381	60			
1	8 3669550	8 3723809	8 3777106	8 3829750	8 3881780	8 3933167	8 3983994	8 403113	59			
2	8 3670755	8 3724703	8 3777989	8 3830631	8 388264	8 3934039	8 3984835	8 4035045	58			
3	8 3671660	8 3725596	8 377807	8 3831503	8 3883501	8 3934991	8 3985677	8 403587	57			
4	8 3672561	8 372648	8 3778951	8 383234	8 3884365	8 393571	8 3986519	8 403609	56			
5	8 3673468	8 3727333	8 3779836	8 3833246	8 388527	8 3936593	8 3987360	8 4037541	55			
6	8 367437	8 3728275	8 3780719	8 3834117	8 3886088	8 3937444	8 3988201	8 403832	54			
7	8 367526	8 3729108	8 3781647	8 3834959	8 3886911	8 3938295	8 3989012	8 403923	53			
8	8 3676118	8 3730001	8 3782582	8 3835860	8 3887809	8 3939145	8 3989883	8 4040035	52			
9	8 3677033	8 3730953	8 37835164	8 3836731	8 3888670	8 3939996	8 39907	8 4040866	51			
10	8 3677937	8 3731815	8 37844504	8 3837601	8 3889530	8 3940846	8 3991564	8 4041696	50			
11	8 3678890	8 3732737	8 37853926	8 3838472	8 3890391	8 3941696	8 3992404	8 40425	49			
12	8 3679793	8 373369	8 3786307	8 3839342	8 3891251	8 3942541	8 3993244	8 4043358	48			
13	8 3680696	8 373451	8 3787288	8 3840213	8 3892111	8 3943376	8 3994084	8 4044188	47			
14	8 3681598	8 3735412	8 3788269	8 3841083	8 3892970	8 3944246	8 3994924	8 4045018	46			
15	8 3682501	8 3736324	8 3789149	8 3841953	8 3893830	8 3945095	8 3995764	8 4045818	45			
16	8 3683403	8 3737155	8 3790039	8 3842822	8 3894689	8 3945945	8 3996603	8 4046678	44			
17	8 3684305	8 3738086	8 3790920	8 3843692	8 3895548	8 3946794	8 3997442	8 4047508	43			
18	8 3685207	8 3738976	8 3791809	8 3844561	8 3896408	8 3947643	8 3998282	8 4048331	42			
19	8 3686108	8 3739867	8 3792699	8 3845430	8 3897266	8 3948492	8 3999121	8 404916	41			
20	8 3687010	8 3740757	8 3793599	8 3846300	8 3898125	8 3949340	8 3999959	8 4049996	40			
21	8 3687911	8 3741647	8 3794488	8 3847168	8 3898984	8 3950189	8 4000798	8 4050825	39			
22	8 3688812	8 3742538	8 3795377	8 3848037	8 3899843	8 3951037	8 4001637	8 4051654	38			
23	8 3689713	8 3743427	8 3796266	8 3848905	8 3900700	8 3951885	8 4002475	8 4052483	37			
24	8 3690614	8 3744317	8 3797155	8 3849774	8 3901558	8 3952733	8 4003313	8 4053311	36			
25	8 3691514	8 3745206	8 3798044	8 3850643	8 3902416	8 3953581	8 4004151	8 405414	35			
26	8 3692414	8 3746096	8 3798932	8 3851510	8 3903274	8 3954419	8 4004989	8 4054968	34			
27	8 3693315	8 3746985	8 3799821	8 3852377	8 3904131	8 3955267	8 4005827	8 4055796	33			
28	8 3694215	8 3747874	8 3800709	8 3853245	8 3904989	8 3956124	8 4006664	8 4056624	32			
29	8 3695114	8 3748763	8 3801597	8 3854113	8 3905846	8 3956971	8 4007502	8 405745	31			
30	8 3696011	8 3749651	8 3802486	8 3854980	8 3906703	8 3957818	8 4008339	8 4058280	30			
31	8 3696913	8 3750539	8 3803374	8 3855847	8 3907560	8 3958665	8 4009176	8 4059107	29			
32	8 3697812	8 3751428	8 3804263	8 3856714	8 3908417	8 3959511	8 4010013	8 4059935	28			
33	8 3698711	8 3752316	8 3805151	8 3857581	8 3909273	8 396035	8 4010850	8 4060762	27			
34	8 3699610	8 3753203	8 3806039	8 3858448	8 3910129	8 3961204	8 4011686	8 4061589	26			
35	8 3700509	8 3754091	8 3806927	8 3859315	8 3910986	8 3962050	8 4012523	8 4062416	25			
36	8 3701407	8 3754977	8 3807815	8 3860180	8 3911842	8 396289	8 4013359	8 4063242	24			
37	8 3702306	8 3755866	8 3808704	8 3861046	8 3912699	8 3963742	8 4014195	8 4064069	23			
38	8 3703201	8 3756753	8 3809592	8 3861912	8 3913553	8 3964588	8 4015031	8 4064895	22			
39	8 3704102	8 3757640	8 3810480	8 3862778	8 3914409	8 3965434	8 4015867	8 40657	21			
40	8 3704999	8 3758527	8 3811367	8 3863643	8 3915264	8 3966279	8 4016702	8 4066548	20			
41	8 3705897	8 3759413	8 3812255	8 3864509	8 3916119	8 3967124	8 4017538	8 4067374	19			
42	8 3706791	8 3760300	8 3813142	8 3865374	8 3916971	8 3967960	8 4018373	8 4068201	18			
43	8 370769	8 3761186	8 3814030	8 3866239	8 3917829	8 3968814	8 4019208	8 4069025	17			
44	8 3708589	8 376207	8 3814905	8 3867104	8 3918684	8 3969659	8 4020043	8 4069850	16			
45	8 3709485	8 3762958	8 3815780	8 3867969	8 3919538	8 3970503	8 4020878	8 4070676	15			
46	8 371038	8 3763843	8 3816655	8 3868833	8 3920393	8 3971348	8 4021713	8 4071501	14			
47	8 3711278	8 3764729	8 3817530	8 3869698	8 3921247	8 3972192	8 4022547	8 4072326	13			
48	8 3712175	8 3765614	8 3818404	8 3870562	8 3922101	8 3973036	8 4023381	8 4073151	12			
49	8 3713071	8 3766499	8 3819273	8 3871426	8 3922955	8 3973880	8 4024216	8 4073975	11			
50	8 3713967	8 3767381	8 3820153	8 3872290	8 3923808	8 3974724	8 4025050	8 4074800	10			
51	8 371486	8 3768269	8 3821027	8 3873153	8 392466	8 3975567	8 4025884	8 4075624	9			
52	8 3715758	8 3769153	8 3821901	8 3874017	8 3925515	8 3976411	8 4026717	8 4076449	8			
53	8 3716653	8 3770038	8 3822775	8 3874880	8 3926368	8 3977254	8 4027551	8 4077273	7			
54	8 3717518	8 3770922	8 3823649	8 3875743	8 3927221	8 3978097	8 4028384	8 4078097	6			
55	8 3718443	8 3771806	8 3824522	8 3876606	8 3928074	8 3978940	8 4029217	8 407890	5			
56	8 3719338	8 3772690	8 3825395	8 3877469	8 3928927	8 3979782	8 4030050	8 4079744	4			
57	8 3720232	8 3773574	8 3826268	8 3878332	8 3929779	8 3980625	8 4030883	8 408056	3			
58	8 3721127	8 3774457	8 3827141	8 3879194	8 3930631	8 3981467	8 4031716	8 4081391	2			
59	8 3722021	8 3775341	8 3828014	8 3880056	8 3931484	8 3982310	8 4032549	8 4082214	1			
60	8 3722915	8 3776223	8 3828886	8 3880919	8 3932337	8 398315	8 4033381	8 4083037	0			
//	39'	38'	37'	36'	35'	34'	33'	32'	//			

COTANGENTS.

88 Deg.

(240)		1 Deg.		SINUS		Tab			
//	28'	29'	30'	31'	32'	33'	34'	35'	36'
0	8 4081614	8 4130676	8 4179190	8 4227108	8 4274621	8 4321531	8 4367938	8 4413841	8 4459241
1	8 4082136	8 4131189	8 4179694	8 4227603	8 4275116	8 4322026	8 4368433	8 4414336	8 4459736
2	8 4082658	8 4131702	8 4180208	8 4228116	8 4275629	8 4322539	8 4368946	8 4414849	8 4460249
3	8 4083180	8 4132215	8 4180718	8 4228625	8 4276138	8 4323048	8 4369455	8 4415362	8 4460752
4	8 4083702	8 4132727	8 4181228	8 4229134	8 4276647	8 4323557	8 4370062	8 4415875	8 4461265
5	8 4084223	8 4133239	8 4181738	8 4229643	8 4277156	8 4324066	8 4370571	8 4416388	8 4461778
6	8 4084745	8 4133752	8 4182248	8 4230152	8 4277665	8 4324575	8 4371080	8 4416901	8 4462291
7	8 4085266	8 4134264	8 4182758	8 4230661	8 4278174	8 4325084	8 4371593	8 4417414	8 4462804
8	8 4085788	8 4134776	8 4183268	8 4231170	8 4278683	8 4325593	8 4372107	8 4417927	8 4463317
9	8 4086309	8 4135288	8 4183778	8 4231679	8 4279192	8 4326102	8 4372620	8 4418440	8 4463830
10	8 4086831	8 4135800	8 4184288	8 4232188	8 4279701	8 4326611	8 4373134	8 4418953	8 4464343
11	8 4087352	8 4136312	8 4184798	8 4232697	8 4280210	8 4327120	8 4373647	8 4419466	8 4464856
12	8 4087874	8 4136824	8 4185308	8 4233206	8 4280719	8 4327629	8 4374160	8 4419979	8 4465369
13	8 4088395	8 4137336	8 4185818	8 4233715	8 4281228	8 4328138	8 4374673	8 4420492	8 4465882
14	8 4088917	8 4137848	8 4186328	8 4234224	8 4281737	8 4328647	8 4375186	8 4421005	8 4466395
15	8 4089438	8 4138360	8 4186838	8 4234733	8 4282246	8 4329156	8 4375699	8 4421518	8 4466908
16	8 4089960	8 4138872	8 4187348	8 4235242	8 4282755	8 4329665	8 4376212	8 4422031	8 4467421
17	8 4090481	8 4139384	8 4187858	8 4235751	8 4283264	8 4330174	8 4376725	8 4422544	8 4467934
18	8 4091003	8 4139896	8 4188368	8 4236260	8 4283773	8 4330683	8 4377238	8 4423057	8 4468447
19	8 4091524	8 4140408	8 4188878	8 4236769	8 4284282	8 4331192	8 4377751	8 4423570	8 4468960
20	8 4092046	8 4140920	8 4189388	8 4237278	8 4284791	8 4331701	8 4378264	8 4424083	8 4469473
21	8 4092567	8 4141432	8 4189898	8 4237787	8 4285300	8 4332210	8 4378777	8 4424596	8 4469986
22	8 4093089	8 4141944	8 4190408	8 4238296	8 4285809	8 4332719	8 4379290	8 4425109	8 4470499
23	8 4093610	8 4142456	8 4190918	8 4238805	8 4286318	8 4333228	8 4379803	8 4425622	8 4471012
24	8 4094132	8 4142968	8 4191428	8 4239314	8 4286827	8 4333737	8 4380316	8 4426135	8 4471525
25	8 4094653	8 4143480	8 4191938	8 4239823	8 4287336	8 4334246	8 4380829	8 4426648	8 4472038
26	8 4095175	8 4143992	8 4192448	8 4240332	8 4287845	8 4334755	8 4381342	8 4427161	8 4472551
27	8 4095696	8 4144504	8 4192958	8 4240841	8 4288354	8 4335264	8 4381855	8 4427674	8 4473064
28	8 4096218	8 4145016	8 4193468	8 4241350	8 4288863	8 4335773	8 4382368	8 4428187	8 4473577
29	8 4096739	8 4145528	8 4193978	8 4241859	8 4289372	8 4336282	8 4382881	8 4428700	8 4474090
30	8 4097261	8 4146040	8 4194488	8 4242368	8 4289881	8 4336791	8 4383394	8 4429213	8 4474603
31	8 4097782	8 4146552	8 4194998	8 4242877	8 4290390	8 4337300	8 4383907	8 4429726	8 4475116
32	8 4098304	8 4147064	8 4195508	8 4243386	8 4290899	8 4337809	8 4384420	8 4430239	8 4475629
33	8 4098825	8 4147576	8 4196018	8 4243895	8 4291408	8 4338318	8 4384933	8 4430752	8 4476142
34	8 4099347	8 4148088	8 4196528	8 4244404	8 4291917	8 4338827	8 4385446	8 4431265	8 4476655
35	8 4099868	8 4148600	8 4197038	8 4244913	8 4292426	8 4339336	8 4385959	8 4431778	8 4477168
36	8 4100390	8 4149112	8 4197548	8 4245422	8 4292935	8 4339845	8 4386472	8 4432291	8 4477681
37	8 4100911	8 4149624	8 4198058	8 4245931	8 4293444	8 4340354	8 4386985	8 4432804	8 4478194
38	8 4101433	8 4150136	8 4198568	8 4246440	8 4293953	8 4340863	8 4387498	8 4433317	8 4478707
39	8 4101954	8 4150648	8 4199078	8 4246949	8 4294462	8 4341372	8 4388011	8 4433830	8 4479220
40	8 4102476	8 4151160	8 4199588	8 4247458	8 4294971	8 4341881	8 4388524	8 4434343	8 4479733
41	8 4102997	8 4151672	8 4200098	8 4247967	8 4295480	8 4342390	8 4389037	8 4434856	8 4480246
42	8 4103519	8 4152184	8 4200608	8 4248476	8 4295989	8 4342900	8 4389550	8 4435369	8 4480759
43	8 4104040	8 4152696	8 4201118	8 4248985	8 4296498	8 4343409	8 4390063	8 4435882	8 4481272
44	8 4104562	8 4153208	8 4201628	8 4249494	8 4297007	8 4343918	8 4390576	8 4436395	8 4481785
45	8 4105083	8 4153720	8 4202138	8 4249999	8 4297516	8 4344427	8 4391089	8 4436908	8 4482298
46	8 4105605	8 4154232	8 4202648	8 4250508	8 4298025	8 4344936	8 4391602	8 4437421	8 4482811
47	8 4106126	8 4154744	8 4203158	8 4251017	8 4298534	8 4345445	8 4392115	8 4437934	8 4483324
48	8 4106648	8 4155256	8 4203668	8 4251526	8 4299043	8 4345954	8 4392628	8 4438447	8 4483837
49	8 4107169	8 4155768	8 4204178	8 4252035	8 4299552	8 4346463	8 4393141	8 4438960	8 4484350
50	8 4107691	8 4156280	8 4204688	8 4252544	8 4300061	8 4346972	8 4393654	8 4439473	8 4484863
51	8 4108212	8 4156792	8 4205198	8 4253053	8 4300570	8 4347481	8 4394167	8 4439986	8 4485376
52	8 4108734	8 4157304	8 4205708	8 4253562	8 4301079	8 4347990	8 4394680	8 4440499	8 4485889
53	8 4109255	8 4157816	8 4206218	8 4254071	8 4301588	8 4348500	8 4395193	8 4441012	8 4486402
54	8 4109777	8 4158328	8 4206728	8 4254580	8 4302097	8 4349009	8 4395706	8 4441525	8 4486915
55	8 4110298	8 4158840	8 4207238	8 4255089	8 4302606	8 4349518	8 4396219	8 4442038	8 4487428
56	8 4110820	8 4159352	8 4207748	8 4255598	8 4303115	8 4350027	8 4396732	8 4442551	8 4487941
57	8 4111341	8 4159864	8 4208258	8 4256107	8 4303624	8 4350536	8 4397245	8 4443064	8 4488454
58	8 4111863	8 4160376	8 4208768	8 4256616	8 4304133	8 4351045	8 4397758	8 4443577	8 4488967
59	8 4112384	8 4160888	8 4209278	8 4257125	8 4304642	8 4351554	8 4398271	8 4444090	8 4489480
60	8 4112906	8 4161400	8 4209788	8 4257634	8 4305151	8 4352063	8 4398784	8 4444603	8 4489993
61	8 4113427	8 4161912	8 4210298	8 4258143	8 4305660	8 4352572	8 4399297	8 4445116	8 4490506
62	8 4113949	8 4162424	8 4210808	8 4258652	8 4306169	8 4353081	8 4399810	8 4445629	8 4491019
63	8 4114470	8 4162936	8 4211318	8 4259161	8 4306678	8 4353590	8 4400323	8 4446142	8 4491532
64	8 4114992	8 4163448	8 4211828	8 4259670	8 4307187	8 4354100	8 4400836	8 4446655	8 4492045
65	8 4115513	8 4163960	8 4212338	8 4260179	8 4307696	8 4354609	8 4401349	8 4447168	8 4492558
66	8 4116035	8 4164472	8 4212848	8 4260688	8 4308205	8 4355118	8 4401862	8 4447681	8 4493071
67	8 4116556	8 4164984	8 4213358	8 4261197	8 4308714	8 4355627	8 4402375	8 4448194	8 4493584
68	8 4117078	8 4165496	8 4213868	8 4261706	8 4309223	8 4356136	8 4402888	8 4448707	8 4494097
69	8 4117599	8 4166008	8 4214378	8 4262215	8 4309732	8 4356645	8 4403401	8 4449220	8 4494610
70	8 4118121	8 4166520	8 4214888	8 4262724	8 4310241	8 4357154	8 4403914	8 4449733	8 4495123
71	8 4118642	8 4167032	8 4215398	8 4263233	8 4310750	8 4357663	8 4404427	8 4450246	8 4495636
72	8 4119164	8 4167544	8 4215908	8 4263742	8 4311259	8 4358172	8 4404940	8 4450759	8 4496149
73	8 4119685	8 4168056	8 4216418	8 4264251	8 4311768	8 4358681	8 4405453	8 4451272	8 4496662
74	8 4120207	8 4168568	8 4216928	8 4264760	8 4312277	8 4359190	8 4405966	8 4451785	8 4497175
75	8 4120728	8 4169080	8 4217438	8 4265269	8 4312786	8 4359700	8 4406479	8 4452298	8 4497688
76	8 4121250	8 4169592	8 4217948	8 4265778	8 4313295	8 4360209	8 4406992	8 4452811	8 4498201
77	8 4121771	8 4170104	8 4218458	8 4266287	8 4313804	8 4360718	8 4407505	8 4453324	8 4498714
78	8 4122293	8 4170616	8 4218968	8 4266796	8 4314313	8 4361227	8 4408018	8 4453837	8 4499227
79	8 4122814	8 4171128	8 4219478	8 4267305	8 4314822	8 4361736	8 4408531	8 4454350	8 4499740
80	8 4123336	8 4171640	8 4220000	8 4267814	8 4315331	8 4362245	8 4409044	8 4454863	8 4500253
81	8 4123857	8 4172152	8 4220510	8 4268323	8 4315840	8 4362754	8 4409557	8 4455376	8 4500766
82	8 4124379	8 4172664	8 4221020	8 4268832	8 4316349	8 4363263	8 4410070	8 4455889	8 4501279
83	8 4124900	8 4173176	8 4221530	8 4269341	8 4316858	8 4363772	8 4410583	8 4456402	8 4501792
84	8 4125422	8 4173688	8 4222040	8 4269850	8 4317367	8 4364281	8 4411096	8 4456915	8 4502305
85	8 4125943	8 4174200	8 4222550	8 4270359	8 4317876	8 4364790	8 4411609	8 4457428	8 4502818
86	8 4126465	8 4174712	8 4223060	8 4270868	8 4318385	8 4365299	8 4412122	8 4457941	8 4503331
87	8 4126986	8 4175224	8 4223570	8 4271377	8 4318894	8 4365808	8 4412635	8 4458454	8 4503844
88	8 4127								

1 Deg		TANGENTS										(241)
//	28'	29'	30'	31'	32'	33'	34'	35'	//			
1	8 108305	8 413213	8 1180679	8 4 28690	8 1276176	8 4323 50	8 4369622	8 4415603	60			
2	8 1083859	8 413375	8 1181483	8 1229185	8 4276963	8 4323929	8 4370393	8 4416365	59			
3	8 1084663	8 413538	8 1182287	8 1230281	8 4 77750	8 43 4707	8 4371103	8 4417127	58			
4	8 1085467	8 413700	8 1183092	8 123106	8 4 78537	8 4325486	8 4371933	8 4417889	57			
5	8 1086271	8 413862	8 1183896	8 1231872	8 4 79324	8 43 6264	8 4372703	8 4418651	56			
6	8 1087075	8 414024	8 1184700	8 4 3 667	8 4 80110	8 1327042	8 4373473	8 4419413	55			
7	8 1087879	8 414186	8 1185504	8 423346	8 4 80897	8 43 7820	8 4374244	8 4420174	54			
8	8 1088683	8 414348	8 1186307	8 4234 57	8 4281683	8 4348598	8 4375012	8 4420936	53			
9	8 1089487	8 414510	8 1187111	8 4 35051	8 4282469	8 1329375	8 4375781	8 44 169	52			
10	8 1090291	8 414672	8 1187914	8 4 35846	8 4283 55	8 4330153	8 4376550	8 44 458	51			
11	8 1091095	8 414834	8 1188717	8 4236640	8 4284041	8 4330930	8 43773 0	8 4423219	50			
12	8 1091899	8 414996	8 1189520	8 4237434	8 4284826	8 4331707	8 4378089	8 4423980	49			
13	8 1092703	8 415158	8 1190323	8 4238229	8 4 85612	8 4332484	8 4378857	8 44 4741	48			
14	8 1093507	8 415320	8 1191126	8 4239023	8 4286397	8 4333261	8 43796 6	8 4425502	47			
15	8 1094311	8 415482	8 1191929	8 4239816	8 4287182	8 4334038	8 4380395	8 442626	46			
16	8 1095115	8 415644	8 1192731	8 4240610	8 4287968	8 4334815	8 4381163	8 4427023	45			
17	8 1095919	8 415806	8 1193533	8 4241404	8 4288752	8 4335591	8 4381931	8 44 7783	44			
18	8 1096723	8 415968	8 1194336	8 424219	8 4289537	8 4336368	8 4382700	8 44 8543	43			
19	8 1097527	8 416130	8 1195138	8 4 4 990	8 4290322	8 4337144	8 4383468	8 44 9303	42			
20	8 1098331	8 416292	8 1195940	8 4243783	8 4291106	8 4337920	8 4384 35	8 4430063	41			
21	8 1099135	8 416454	8 1196741	8 4244576	8 4 91891	8 4338696	8 4385003	8 44308 2	40			
22	8 1100283	8 416616	8 1197543	8 4245369	8 4292675	8 4339472	8 4385771	8 4431582	39			
23	8 1101087	8 416778	8 1198344	8 4246162	8 4293459	8 4340248	8 4386538	8 4432341	38			
24	8 1101891	8 416940	8 1199146	8 4246954	8 4294243	8 4341023	8 4387306	8 4433101	37			
25	8 1102695	8 417102	8 1199947	8 4247747	8 4295027	8 4341799	8 4388073	8 4433860	36			
26	8 1103499	8 417264	8 1200748	8 4 48539	8 4295811	8 434 574	8 4388840	8 4434619	35			
27	8 1104303	8 417426	8 1201549	8 1249311	8 4296594	8 4343349	8 4389607	8 4435378	34			
28	8 1105107	8 417588	8 1202349	8 4250123	8 4 97377	8 4344124	8 4390374	8 4436137	33			
29	8 1105911	8 417750	8 1203150	8 4250915	8 1298161	8 4344899	8 4391140	8 4436895	32			
30	8 1106715	8 417912	8 1203950	8 4 51706	8 4298944	8 4345674	8 4391907	8 4437654	31			
31	8 1107519	8 418074	8 1204750	8 4252498	8 4299727	8 4346448	8 4392673	8 4438412	30			
32	8 1108323	8 418236	8 1205550	8 4253 89	8 4300510	8 4347223	8 4393440	8 4439171	29			
33	8 1109127	8 418398	8 1206350	8 4 54080	8 4301292	8 4347997	8 4394206	8 44399 28	28			
34	8 1109931	8 418560	8 1207150	8 4254872	8 4302075	8 4348771	8 4394972	8 4440687	27			
35	8 1110735	8 418722	8 1207950	8 4255662	8 4302857	8 4349545	8 4395738	8 4441444	26			
36	8 1111539	8 418884	8 1208749	8 4256453	8 4303639	8 4350319	8 4396503	8 4442202	25			
37	8 1112343	8 419046	8 1209549	8 4 57244	8 4304422	8 4351093	8 4397269	8 444 960	24			
38	8 1113147	8 419208	8 1210348	8 4258034	8 4305204	8 4351867	8 4398034	8 4443717	23			
39	8 1113951	8 419370	8 1211147	8 4 58825	8 4305985	8 4352640	8 4398800	8 4444475	22			
40	8 1114755	8 419532	8 1211946	8 4259615	8 4306767	8 4353413	8 4399565	8 444523	21			
41	8 1115559	8 419694	8 1212745	8 4260405	8 4307549	8 4354187	8 4400330	8 4445989	20			
42	8 1116363	8 419856	8 1213543	8 4261195	8 4308330	8 4354960	8 4401095	8 4446746	19			
43	8 1117167	8 419918	8 1214342	8 4261985	8 4309111	8 4355733	8 4401860	8 444 503	18			
44	8 1117971	8 420080	8 1215140	8 4262774	8 4309892	8 4356506	8 440 6 4	8 4448 59	17			
45	8 1118775	8 420242	8 1215938	8 4263564	8 4310673	8 4357278	8 4403389	8 4449016	16			
46	8 1119579	8 420404	8 1216736	8 4264353	8 4311454	8 4358051	8 4404153	8 4449772	15			
47	8 1120383	8 420566	8 1217534	8 4265142	8 4312235	8 4358823	8 4404918	8 4450529	14			
48	8 1121187	8 420728	8 1218332	8 4265932	8 4313016	8 4359595	8 440568	8 4451285	13			
49	8 1121991	8 420890	8 1219130	8 42667 0	8 4313796	8 4360367	8 4406446	8 4452041	12			
50	8 1122795	8 421052	8 1219927	8 4267509	8 4314576	8 4361139	8 4407209	8 445 791	11			
51	8 1123599	8 421214	8 1220725	8 4268 98	8 4315356	8 4361911	8 4407973	8 4453552	10			
52	8 1124403	8 421376	8 1221522	8 4269086	8 4316136	8 4362683	8 4408737	8 4454308	9			
53	8 1125207	8 421538	8 1222319	8 4269875	8 4316916	8 4363455	8 4409500	8 4455063	8			
54	8 1126011	8 421700	8 1223116	8 4270663	8 4317696	8 4364227	8 4410263	8 4455819	7			
55	8 1126815	8 421862	8 1223912	8 4271451	8 4318476	8 4364997	8 4411027	8 4456574	6			
56	8 1127619	8 422024	8 1224709	8 4272239	8 4319 55	8 1365768	8 4411790	8 445 73 9	5			
57	8 1128423	8 422186	8 1225505	8 427302	8 4320031	8 4366540	8 4412553	8 4458084	4			
58	8 1129227	8 422348	8 1226300	8 4 73814	8 13 0814	8 4367310	8 4413315	8 4458839	3			
59	8 1130031	8 422510	8 1227098	8 4274602	8 43 1593	8 4368081	8 4414078	8 4459594	2			
60	8 1130835	8 422672	8 1227894	8 4275389	8 43223	8 4368852	8 4414841	8 4460348	1			
61	8 1131639	8 422834	8 1228690	8 4276176	8 1323150	8 43696 2	8 4415603	8 4461103	0			
//	31'	30'	29'	28'	27'	26'	25'	24'	//			
										COTANGENTS		
										H h 88 Deg		

(242)		Deg		SINES		Tab		9	
36'	37'	38'	39'	40'	41'	42'	43'	36'	37'
0	34459409	34504402	34518934	34593013	34636649	34679850	3472676	34764134	60
1	34460163	34505118	34519672	34593744	34637372	34680567	34727335	34764886	59
2	34460916	34505894	34520410	34594474	34638096	34681283	34728044	34765388	58
3	34461670	34506640	34521148	34595205	34638819	34681999	34728753	34765891	57
4	34462423	34507385	34521886	34595936	34639542	34682715	34729464	34766394	56
5	34463176	34508131	34522624	34596666	34640265	34683431	34730171	34766895	55
6	34463929	34508876	34523362	34597396	34640988	34684147	34730880	34767397	54
7	34464682	34509621	34524099	34598126	34641711	34684862	34731589	34767899	53
8	34465435	34510366	34524837	34598856	34642434	34685578	34732297	34768401	52
9	34466188	34511111	34525574	34599586	34643156	34686293	34733006	34768902	51
10	34466940	34511856	34526311	34600316	34643879	34687009	34733714	34769403	50
11	34467693	34512601	34527048	34601046	34644601	34687724	34734422	34770005	49
12	34468445	34513345	34527785	34601775	34645323	34688439	34735130	34770606	48
13	34469197	34514090	34528522	34602505	34646046	34689154	34735838	34771207	47
14	34469949	34514834	34529259	34603234	34646768	34689869	34736546	34771808	46
15	34470701	34515578	34529996	34603963	34647489	34690584	34737254	34772409	45
16	34471453	34516322	34530732	34604692	34648211	34691301	34737962	34773010	44
17	34472205	34517066	34531468	34605421	34648933	34692013	34738669	34773611	43
18	34472956	34517810	34532205	34606150	34649654	34692727	34739377	34774211	42
19	34473707	34518553	34532941	34606878	34650376	34693441	34740084	34774811	41
20	34474459	34519297	34533677	34607607	34651097	34694156	34740791	34775412	40
21	34475210	34520040	34534412	34608335	34651818	34694870	34741498	34776012	39
22	34475961	34520784	34535148	34609064	34652539	34695583	34742205	34776613	38
23	34476711	34521527	34535884	34609792	34653260	34696297	34742912	34777214	37
24	34477462	34522270	34536619	34610520	34653981	34697011	34743618	34777815	36
25	34478213	34523013	34537354	34611248	34654702	34697725	34744325	34778416	35
26	34478963	34523755	34538090	34611976	34655422	34698438	34745032	34779017	34
27	34479714	34524498	34538825	34612703	34656143	34699151	34745739	34779618	33
28	34480464	34525240	34539560	34613431	34656863	34699865	34746444	34780219	32
29	34481214	34525983	34540295	34614158	34657583	34700578	34747150	34780820	31
30	34481964	34526725	34541029	34614886	34658303	34701291	34747856	34781421	30
31	34482714	34527467	34541764	34615613	34659023	34702003	34748562	34782022	29
32	34483463	34528209	34542498	34616340	34659743	34702716	34749268	34782623	28
33	34484213	34528951	34543233	34617067	34660463	34703429	34749974	34783224	27
34	34484962	34529693	34543967	34617794	34661182	34704141	34750679	34783825	26
35	34485712	34530434	34544701	34618520	34661902	34704854	34751385	34784426	25
36	34486461	34531176	34545435	34619247	34662621	34705566	34752090	34785027	24
37	34487210	34531917	34546169	34619975	34663340	34706278	34752795	34785628	23
38	34487959	34532659	34546902	34620700	34664059	34706990	34753500	34786229	22
39	34488708	34533400	34547636	34621426	34664778	34707702	34754205	34786830	21
40	34489456	34534141	34548369	34622152	34665497	34708414	34754910	34787431	20
41	34490205	34534881	34549103	34622878	34666216	34709126	34755615	34788032	19
42	34490953	34535622	34549836	34623604	34666935	34709837	34756320	34788633	18
43	34491701	34536363	34550569	34624330	34667653	34710549	34757024	34789234	17
44	34492450	34537103	34551302	34625055	34668372	34711260	34757729	34789835	16
45	34493198	34537844	34552035	34625781	34669090	34711971	34758433	34790436	15
46	34493945	34538584	34552768	34626506	34669808	34712682	34759137	34791037	14
47	34494693	34539324	34553500	34627231	34670526	34713393	34759841	34791638	13
48	34495441	34540064	34554233	34627957	34671244	34714101	34760545	34792239	12
49	34496188	34540804	34554965	34628682	34671962	34714815	34761249	34792840	11
50	34496936	34541543	34555697	34629406	34672680	34715526	34761953	34793441	10
51	34497683	34542283	34556429	34630131	34673397	34716236	34762657	34794042	9
52	34498430	34543023	34557161	34630856	34674115	34716947	34763361	34794643	8
53	34499177	34543762	34557893	34631580	34674832	34717657	34764065	34795244	7
54	34499924	34544501	34558625	34632305	34675549	34718367	34764769	34795845	6
55	34500671	34545240	34559357	34633029	34676266	34719077	34765473	34796446	5
56	34501417	34545979	34560088	34633753	34676983	34719787	34766177	34797047	4
57	34502164	34546718	34560819	34634477	34677700	34720497	34766881	34797648	3
58	34502910	34547457	34561551	34635201	34678417	34721207	34767585	34798249	2
59	34503656	34548195	34562282	34635925	34679134	34721916	34768289	34798850	1
60	34504402	34548934	34563013	34636649	34679850	34722626	34768993	34799451	0
123'	22'	31'	20'	19'	18'	17'	16'	15'	14'

COSINES

88 Deg.

1 Deg		TANGENTS								(243)
11	36'	37'	38'	39'	40'	41'	42'	43'	11	
0	84461103	84506131	84550699	84594814	84638181	8468172	84724538	84766933	60	
1	84461857	84506878	84551438	84595545	84639211	84682442	84725438	84767636	59	
2	84462611	84507624	84552176	84596777	84639935	84683155	84725957	84768350	58	
3	84463365	84508371	84552915	84597008	84640659	84683875	84726667	8476907	57	
4	84464119	84509117	84553654	84597739	8464138	8468459	8472737	84769745	56	
5	84464872	84509863	8455439	84598470	84642106	8468530	84728086	84770448	55	
6	84465627	84510609	84555137	84599201	84642830	84686025	84728796	84771150	54	
7	84466380	84511354	84555868	84599932	84643553	84686741	84729505	84771853	53	
8	84467133	84512100	84556607	8460066	84644276	84687458	84730214	84772555	52	
9	84467886	84512846	84557344	84601393	84645000	84688174	8473093	84773257	51	
10	84468639	84513591	84558082	84602123	84645723	84688890	8473163	84773959	50	
11	84469393	84514336	84558820	84602853	84646446	84689605	84732341	84774661	49	
12	84470146	84515081	84559558	84603584	84647168	84690321	84733050	84775363	48	
13	84470898	84515826	84560295	84604314	84647891	84691037	84733758	84776065	47	
14	84471651	84516571	84561032	84605043	84648614	84691752	84734467	84776766	46	
15	84472404	84517316	84561769	84605773	84649336	84692468	84735175	84777468	45	
16	84473156	84518061	84562506	84606503	84650059	84693183	84735884	84778169	44	
17	84473908	84518805	84563243	84607232	84650781	84693898	84736592	84778871	43	
18	84474660	84519549	84563980	84607962	84651503	84694613	84737300	84779572	42	
19	84475412	84520291	84564717	84608691	84652225	84695328	84738008	84780273	41	
20	84476164	84521038	84565453	84609420	84652947	84696043	84738715	84780974	40	
21	84476916	84521782	84566190	84610149	84653669	84696757	8473943	84781675	39	
22	84477667	84522526	84566926	84610878	84654390	8469747	84740131	84782375	38	
23	84478419	84523269	8456766	84611607	84655112	84698186	84740838	84783076	37	
24	84479170	84524013	84568396	84612336	84655833	84698900	84741545	84783776	36	
25	84479921	84524757	84569134	84613064	84656555	84699615	8474225	84784477	35	
26	84480672	84525500	84569870	84613792	84657276	84700329	84742960	84785177	34	
27	84481423	84526243	84570606	8461451	84657997	84701043	84743667	84785877	33	
28	84482174	84526986	84571341	84615249	84658718	84701756	84744374	84786577	32	
29	84482925	84527729	84572077	84615977	84659439	84702470	84745080	84787277	31	
30	84483675	8452847	8457281	84616705	84660159	84703184	84745787	84787977	30	
31	84484426	84529215	84573547	84617433	84660880	84703897	84746494	84788677	29	
32	84485176	84529957	84574282	84618160	84661600	84704611	84747200	84789376	28	
33	84485926	84530700	84575017	84618888	84662321	84705324	84747906	84790076	27	
34	84486676	84531442	84575752	84619615	84663041	84706037	84748612	84790775	26	
35	84487426	84532184	84576487	84620343	84663761	84706750	84749319	84791475	25	
36	84488176	84532926	84577221	84621070	84664481	84707463	84750025	84792174	24	
37	84488925	84533668	84577956	84621797	84665201	84708176	84750730	84792873	23	
38	84489675	84534410	84578690	84622524	84665921	84708888	84751436	84793572	22	
39	84490424	84535152	84579424	84623251	84666640	84709601	84752142	84794271	21	
40	84491173	84535893	84580158	84623978	84667360	84710313	84752847	84794969	20	
41	84491923	84536635	84580892	84624704	84668079	84711026	84753553	84795668	19	
42	84492672	84537376	84581626	84625431	84668798	84711738	84754258	84796366	18	
43	84493420	84538117	84582360	84626157	84669517	84712450	84754963	84797065	17	
44	84494169	84538859	84583094	84626883	84670236	84713162	84755668	84797763	16	
45	84494918	84539599	845838	84627609	84670955	84713874	84756373	84798461	15	
46	84495666	84540340	84584560	84628335	84671674	84714586	84757078	84799159	14	
47	84496415	84541081	84585293	84629061	84672393	84715297	84757783	84799857	13	
48	84497163	84541822	84586027	84629787	84673111	84716009	84758488	84800555	12	
49	84497911	84542562	84586760	84630512	84673830	84716720	8475919	8480125	11	
50	84498659	84543302	84587499	84631238	84674548	84717431	84759896	84801950	10	
51	84499407	84544043	84588225	84631963	84675266	84718142	84760600	84802648	9	
52	84500154	84544783	8458895	84632689	84675984	84718853	84761304	84803345	8	
53	8450090	84545523	84589690	84633414	8467670	84719564	84762008	84804042	7	
54	84501649	84546262	84590422	84634139	84677420	84720275	8476271	84804739	6	
55	84502397	84547002	84591155	84634864	84678138	84720986	84763416	84805436	5	
56	84503144	84547742	84591887	84635588	84678855	84721696	84764120	84806133	4	
57	84503891	84548481	84592610	84636313	84679573	84722407	84764823	84806830	3	
58	84504638	84549220	84593351	84637038	84680290	84723117	84765527	84807527	2	
59	84505385	84549960	84594082	84637762	84681008	84723827	84766230	84808223	1	
60	84506131	84550699	84594814	84638486	84681725	84724538	84766933	84808920	0	
	23'	22'	21'	20'	19'	18'	17'	16'	11	
TANGENTS.										
H h a 88 Deg										

COTANGENTS.

H h 2

88 Deg

(214)

1 Deg.

SINES

Tab 9

	41'	45'	46'	47'	48'	49'	50'	51'	
1	4806932	4848479	4889632	4930398	4970784	5010798	5050447	5089736	60
2	1807620	4849168	4890314	4931074	4971454	5011462	5051105	5090388	59
3	4808323	4849857	4890997	4931750	4972124	5012126	5051762	5091040	58
4	4809019	4850546	4891679	4932426	4972794	5012790	5052420	5091693	57
5	4809714	4851235	4892361	4933102	4973463	5013453	5053077	5092343	56
6	4810410	4851923	4893043	4933778	4974133	5014116	5053735	5092994	55
7	4811105	4852612	4893726	4934453	4974802	5014780	5054392	5093646	54
8	4811800	4853300	4894407	4935129	4975472	5015443	5055049	5094292	53
9	4812495	4853989	4895089	4935804	4976141	5016106	5055706	5094941	52
10	4813190	4854677	4895771	4936480	4976810	5016769	5056363	5095590	51
11	4813884	4855365	4896453	4937155	4977479	5017432	5057020	5096250	50
12	4814579	4856053	4897134	4937830	4978140	5018095	5057677	5096901	49
13	4815273	4856741	4897816	4938505	4978817	5018757	5058333	5097555	48
14	4815968	4857429	4898497	4939180	4979485	5019420	5058990	5098202	47
15	4816662	4858116	4899178	4939855	4980154	5020082	5059646	5098853	46
16	4817356	4858804	4899859	4940530	4980823	5020745	5060303	5099503	45
17	4818050	4859491	4900540	4941204	4981491	5021407	5060959	5100154	44
18	4818744	4860179	4901221	4941879	4982159	5022069	5061615	5100804	43
19	4819438	4860866	4901902	4942553	4982827	5022731	5062271	5101454	42
20	4820132	4861553	4902582	4943228	4983495	5023393	5062927	5102104	41
21	4820825	4862240	4903263	4943902	4984163	5024055	5063583	5102754	40
22	4821519	4862927	4903943	4944576	4984831	5024717	5064239	5103404	39
23	4822212	4863614	4904624	4945250	4985499	5025378	5064894	5104051	38
24	4822905	4864300	4905304	4945924	4986167	5026040	5065550	5104703	37
25	4823599	4864987	4905984	4946597	4986834	5026701	5066205	5105353	36
26	4824292	4865673	4906664	4947271	4987502	5027363	5066861	5106002	35
27	4824985	4866360	4907344	4947945	4988169	5028024	5067516	5106652	34
28	4825677	4867046	4908024	4948618	4988836	5028685	5068171	5107301	33
29	4826370	4867732	4908703	4949292	4989504	5029346	5068826	5107950	32
30	4827063	4868418	4909383	4949965	4990171	5030007	5069481	5108599	31
31	4827755	4869104	4910063	4950638	4990838	5030668	5070136	5109248	30
32	4828448	4869790	4910742	4951311	4991504	5031329	5070791	5109897	29
33	4829140	4870476	4911421	4951984	4992171	5031989	5071446	5110546	28
34	4829832	4871161	4912100	4952657	4992838	5032650	5072100	5111195	27
35	4830524	4871847	4912779	4953330	4993504	5033310	5072755	5111843	26
36	4831216	4872532	4913458	4954002	4994171	5033971	5073409	5112492	25
37	4831908	4873217	4914137	4954675	4994837	5034631	5074063	5113140	24
38	4832600	4873903	4914816	4955347	4995503	5035291	5074717	5113789	23
39	4833291	4874588	4915495	4956020	4996169	5035951	5075371	5114437	22
40	4833983	4875273	4916173	4956692	4996835	5036611	5076025	5115085	21
41	4834674	4875957	4916852	4957364	4997501	5037271	5076679	5115733	20
42	4835365	4876642	4917530	4958036	4998167	5037931	5077333	5116381	19
43	4836057	4877327	4918208	4958708	4998833	5038590	5077987	5117029	18
44	4836748	4878011	4918886	4959380	4999499	5039250	5078640	5117676	17
45	4837439	4878696	4919564	4960051	5000164	5039909	5079294	5118324	16
46	4838129	4879380	4920242	4960723	5000829	5040569	5079947	5118972	15
47	4838820	4880064	4920920	4961394	5001495	5041228	5080601	5119620	14
48	4839511	4880748	4921598	4962066	5002160	5041887	5081254	5120266	13
49	4840201	4881432	4922275	4962737	5002825	5042546	5081907	5120914	12
50	4840892	4882116	4922953	4963408	5003490	5043205	5082560	5121561	11
51	4841582	4882800	4923630	4964079	5004155	5043861	5083213	5122208	10
52	4842272	4883484	4924307	4964750	5004820	5044518	5083866	5122855	9
53	4842962	4884167	4924984	4965421	5005485	5045181	5084518	5123502	8
54	4843652	4884851	4925661	4966092	5006149	5045840	5085171	5124148	7
55	4844342	4885534	4926338	4966763	5006814	5046498	5085823	5124795	6
56	4845032	4886217	4927015	4967433	5007478	5047157	5086476	5125442	5
57	4845721	4886900	4927692	4968104	5008142	5047815	5087128	5126088	4
58	4846411	4887583	4928368	4968774	5008806	5048473	5087780	5126735	3
59	4847100	4888266	4929045	4969444	5009471	5049131	5088432	5127381	2
60	4847790	4888949	4929721	4970114	5010135	5049789	5089084	5128027	1
61	4848479	4889632	4930398	4970784	5010798	5050447	5089736	5128673	0
62	4849168	4890314	4931074	4971454	5011462	5051105	5090388	5129319	61
63	4849857	4890997	4931750	4972124	5012126	5051762	5091040	5129965	60
64	4850546	4891679	4932426	4972794	5012790	5052420	5091693	5130611	59
65	4851235	4892361	4933102	4973463	5013453	5053077	5092343	5131257	58
66	4851923	4893043	4933778	4974133	5014116	5053735	5092994	5131903	57
67	4852612	4893726	4934453	4974802	5014780	5054392	5093646	5132549	56
68	4853300	4894407	4935129	4975472	5015443	5055049	5094292	5133195	55
69	4853989	4895089	4935804	4976141	5016106	5055706	5094941	5133841	54
70	4854677	4895771	4936480	4976810	5016769	5056363	5095590	5134487	53
71	4855365	4896453	4937155	4977479	5017432	5057020	5096250	5135133	52
72	4856053	4897134	4937830	4978140	5018095	5057677	5096901	5135779	51
73	4856741	4897816	4938505	4978817	5018757	5058333	5097555	5136425	50
74	4857429	4898497	4939180	4979485	5019420	5058990	5098202	5137071	49
75	4858116	4899178	4939855	4980154	5020082	5059646	5098853	5137717	48
76	4858804	4899859	4940530	4980823	5020745	5060303	5099503	5138363	47
77	4859491	4900540	4941204	4981491	5021407	5060959	5100154	5139009	46
78	4860179	4901221	4941879	4982159	5022069	5061615	5100804	5139655	45
79	4860866	4901902	4942553	4982827	5022731	5062271	5101454	5140301	44
80	4861553	4902582	4943228	4983495	5023393	5062927	5102104	5140947	43
81	4862240	4903263	4943902	4984163	5024055	5063583	5102754	5141593	42
82	4862927	4903943	4944576	4984831	5024717	5064239	5103404	5142239	41
83	4863614	4904624	4945250	4985499	5025378	5064894	5104051	5142885	40
84	4864300	4905304	4945924	4986167	5026040	5065550	5104703	5143531	39
85	4864987	4905984	4946597	4986834	5026701	5066205	5105353	5144177	38
86	4865673	4906664	4947271	4987502	5027363	5066861	5106002	5144823	37
87	4866360	4907344	4947945	4988169	5028024	5067516	5106652	5145469	36
88	4867046	4908024	4948618	4988836	5028685	5068171	5107301	5146115	35
89	4867732	4908703	4949292	4989504	5029346	5068826	5107950	5146761	34
90	4868418	4909383	4949965	4990171	5030007	5069481	5108599	5147407	33
91	4869104	4910063	4950638	4990838	5030668	5070136	5109248	5148053	32
92	4869790	4910742	4951311	4991504	5031329	5070791	5109897	5148699	31
93	4870476	4911421	4951984	4992171	5031989	5071446	5110546	5149345	30
94	4871161	4912100	4952657	4992838	5032650	5072100	5111195	5150000	29
95	4871847	4912779	4953330	4993504	5033310	5072755	5111843	5150646	28
96	4872532	4913458	4954002	4994171	5033971	5073409	5112492	5151292	27
97	4873217	4914137	4954675	4994837	5034631	5074063	5113140	5151938	26
98	4873903	4914816	4955347	4995503	5035291	5074717	5113789	5152584	25
99	4874588	4915495	4956020	4996169	5035951	5075371	5114437	5153230	24
100	4875273	4916173	4956692	4996835	5036611	5076025	5115085	5153876	23
101	4875957	4916852	4957364	4997501	5037271	5076679	5115733	5154522	22
102	4876642	4917530	4958036	4998167	5037931	5077333	5116381	5155168	21
103	4877327	4918208	4958708	4998833	5038590	5077987	5117029	5155814	20
104	4878011	4918886	4959380	4999499	5039250	5078640	5117676	5156460	19
105	4878696	4919564	4960051	5000164	5039909	5079294	5118324	5157106	18
106	4879380	4920242	4960723	5000829	5040569	5079947	5118972</		

1 Deg		TANGENTS										(245)
	44'	45'	46'	47'	48'	49'	50'	51'				
0	8 1808920	8 4850505	8 4891696	8 1932502	8 1972928	8 5012982	8 5052671	8 5092001	60			
1	8 4809616	8 1851195	8 4892380	8 4933179	8 4973598	8 5013616	8 5053329	8 5092653	59			
2	8 1810312	8 1851894	8 4893063	8 4933855	8 4974269	8 5014311	8 5053987	8 5093305	58			
3	8 1811008	8 1852591	8 4893746	8 4934532	8 4974939	8 5014975	8 5054646	8 5093958	57			
4	8 1811704	8 4853631	8 4894429	8 4935208	8 4975610	8 5015639	8 5055304	8 5094610	56			
5	8 1812400	8 1853953	8 4895112	8 4935885	8 4976300	8 5016303	8 5055962	8 5095262	55			
6	8 4813096	8 4854642	8 4895794	8 4936561	8 4976950	8 5016967	8 5056620	8 5095914	54			
7	8 4 13792	8 1855331	8 1896177	8 4937231	8 4977600	8 5017631	8 5057277	8 5096566	53			
8	8 4814487	8 4856020	8 1897159	8 4937914	8 4978290	8 5018295	8 5057935	8 5097218	52			
9	8 1815183	8 4856709	8 4897842	8 4938590	8 4978959	8 5018958	8 5058593	8 5097870	51			
10	8 1815878	8 4857397	8 4898524	8 4939266	8 4979629	8 5019622	8 5059250	8 5098521	50			
11	8 4816574	8 1858086	8 4899206	8 4939941	8 4980299	8 5020285	8 5059908	8 5099173	49			
12	8 4817269	8 4858775	8 4899888	8 4940617	8 4980968	8 5020949	8 5060565	8 5099824	48			
13	8 4817964	8 1859463	8 4900570	8 4941293	8 4981638	8 5021612	8 5061222	8 5100475	47			
14	8 4818659	8 4860151	8 4901522	8 4941968	8 4982307	8 5022275	8 5061879	8 5101127	46			
15	8 1819353	8 4860839	8 4901934	8 4942643	8 4982976	8 5022938	8 5062536	8 5101778	45			
16	8 4820048	8 1861528	8 4902615	8 4943319	8 4983645	8 5023601	8 5063193	8 5102429	44			
17	8 1820743	8 4862216	8 4903297	8 4943994	8 4984314	8 5024264	8 5063850	8 5103080	43			
18	8 4821437	8 1862903	8 4903978	8 4944669	8 4984983	8 5024927	8 5064507	8 5103731	42			
19	8 4822131	8 4863591	8 4904660	8 4945344	8 4985655	8 5025589	8 5065164	8 5104381	41			
20	8 4822826	8 4864279	8 4905341	8 4946019	8 4986320	8 5026252	8 5065820	8 5105032	40			
21	8 4823520	8 4864966	8 4906022	8 4946691	8 4986989	8 5026914	8 5066477	8 5105683	39			
22	8 1824214	8 4865654	8 4906703	8 4947368	8 4987657	8 5027576	8 5067133	8 5106333	38			
23	8 4824908	8 4866341	8 4907384	8 4948043	8 4988325	8 5028239	8 5067789	8 5106983	37			
24	8 4825602	8 1867028	8 4908065	8 4948717	8 4988994	8 5028901	8 5068445	8 5107634	36			
25	8 4826295	8 4867716	8 4908745	8 4949393	8 4989662	8 5029563	8 5069101	8 5108284	35			
26	8 4826989	8 4868403	8 4909426	8 4950066	8 4990330	8 5030225	8 5069757	8 5108934	34			
27	8 4827682	8 4869089	8 4910106	8 4950741	8 4990998	8 5030887	8 5070413	8 5109584	33			
28	8 4828376	8 1869776	8 4910787	8 4951411	8 4991666	8 5031548	8 5071069	8 5110234	32			
29	8 1829069	8 1870463	8 4911467	8 4952088	8 4992333	8 5032210	8 5071724	8 5110883	31			
30	8 4829763	8 4871149	8 4912147	8 4952766	8 4993001	8 5032871	8 5072380	8 5111533	30			
31	8 4830455	8 4871836	8 4912827	8 4953435	8 4993668	8 5033533	8 5073035	8 5112183	29			
32	8 4831148	8 1872522	8 4913507	8 4954109	8 4994336	8 5034194	8 5073691	8 5112832	28			
33	8 1831841	8 4873209	8 4914187	8 4954783	8 4995003	8 5034855	8 5074346	8 5113482	27			
34	8 4832533	8 4873895	8 4914866	8 4955456	8 4995670	8 5035517	8 5075001	8 5114131	26			
35	8 4833226	8 4874581	8 4915546	8 4956129	8 4996337	8 5036178	8 5075656	8 5114780	25			
36	8 4833919	8 4875267	8 4916226	8 4956800	8 4997004	8 5036838	8 5076311	8 5115429	24			
37	8 4834611	8 4875952	8 4916905	8 4957476	8 4997671	8 5037499	8 5076966	8 5116078	23			
38	8 4835303	8 1876638	8 4917584	8 4958148	8 4998338	8 5038160	8 5077621	8 5116727	22			
39	8 4835995	8 4877324	8 4918263	8 4958821	8 4999005	8 5038821	8 5078275	8 5117376	21			
40	8 4836687	8 4878009	8 4918942	8 4959491	8 4999671	8 5039481	8 5078930	8 5118025	20			
41	8 1837379	8 1878695	8 4919621	8 4960167	8 5000336	8 5040142	8 5079584	8 5118673	19			
42	8 4838071	8 4879380	8 4920300	8 4960839	8 5001004	8 5040802	8 5080239	8 5119322	18			
43	8 4838763	8 1880065	8 4920979	8 4961512	8 5001671	8 5041462	8 5080893	8 5119971	17			
44	8 4839454	8 4880750	8 4921658	8 4962184	8 5002337	8 5042122	8 5081547	8 5120618	16			
45	8 1840146	8 1881435	8 4922336	8 4962856	8 5003003	8 5042782	8 5082201	8 5121267	15			
46	8 4840837	8 1882120	8 4923015	8 4963529	8 5003669	8 5043442	8 5082855	8 5121915	14			
47	8 4841528	8 1882805	8 4923693	8 4964201	8 5004335	8 5044102	8 5083509	8 5122563	13			
48	8 1842220	8 1883489	8 4924371	8 4964873	8 5005001	8 5044762	8 5084163	8 5123211	12			
49	8 4842911	8 1884171	8 4925049	8 4965544	8 5005666	8 5045421	8 5084817	8 5123859	11			
50	8 4843602	8 4884858	8 4925727	8 4966216	8 5006332	8 5046081	8 5085470	8 5124506	10			
51	8 1844292	8 4885543	8 4926405	8 4966888	8 5006997	8 5046740	8 5086124	8 5125154	9			
52	8 4844983	8 4886227	8 4927083	8 4967559	8 5007663	8 5047400	8 5086777	8 5125801	8			
53	8 4845671	8 4886911	8 4927761	8 4968231	8 5008328	8 5048059	8 5087430	8 5126449	7			
54	8 4846364	8 4887595	8 4928438	8 4968902	8 5008993	8 5048718	8 5088084	8 5127096	6			
55	8 4847055	8 4888279	8 4929116	8 4969573	8 5009658	8 5049377	8 5088737	8 5127743	5			
56	8 4847745	8 4888962	8 4929793	8 4970244	8 5010323	8 5050036	8 5089390	8 5128391	4			
57	8 1848435	8 1889646	8 4930471	8 4970915	8 5010988	8 5050695	8 5090043	8 5129038	3			
58	8 4849125	8 1890330	8 4931143	8 4971581	8 5011653	8 5051353	8 5090695	8 5129684	2			
59	8 4849815	8 1891013	8 4931825	8 4972257	8 5012318	8 5052012	8 5091348	8 5130332	1			
60	8 1850505	8 1891696	8 4932502	8 4972928	8 5012984	8 5052671	8 5092001	8 5130978	0			
	15'	11'	13'	12'	11'	10'	9'	8'				

(246)		1 Deg		SINES						Tab	
11	52'	53'	54'	55'	56'	57'	58'	59'	11		
0	8 5128673	8 5167264	8 5205514	8 5243430	8 5281017	8 5318281	8 5355224	8 5392473	60		
1	8 5129319	8 5167904	8 5206148	8 5244059	8 5281641	8 5318900	8 5355842	8 5393107	59		
2	8 5129965	8 5168544	8 5206783	8 5244688	8 5282264	8 5319518	8 5356455	8 5393729	58		
3	8 5130611	8 5169184	8 5207417	8 5245317	8 5282888	8 5320136	8 5357068	8 5394357	57		
4	8 5131256	8 5169821	8 5208052	8 5245946	8 5283511	8 5320754	8 5357680	8 5394985	56		
5	8 5131902	8 5170464	8 5208686	8 5246574	8 5284135	8 532137	8 5358293	8 5395602	55		
6	8 5132548	8 5171104	8 5209320	8 5247203	8 5284758	8 5321990	8 5358906	8 5396210	54		
7	8 5133193	8 5171743	8 5209954	8 5247832	8 5285381	8 5322608	8 5359518	8 5396817	53		
8	8 5133838	8 5172383	8 5210588	8 5248460	8 5286004	8 5323226	8 5360131	8 5397425	52		
9	8 5134484	8 5173023	8 5211222	8 5249088	8 5286627	8 5323844	8 5360743	8 5398033	51		
10	8 5135129	8 5173662	8 5211856	8 5249717	8 5287250	8 5324461	8 5361356	8 5398641	50		
11	8 5135774	8 5174301	8 5212490	8 5250345	8 5287873	8 5325079	8 5361968	8 5399249	49		
12	8 5136419	8 5174941	8 5213123	8 5250973	8 5288495	8 5325696	8 5362580	8 5399857	48		
13	8 5137064	8 5175580	8 5213757	8 5251601	8 5289118	8 5326313	8 5363192	8 5399960	47		
14	8 5137708	8 5176219	8 5214390	8 5252229	8 5289741	8 5326931	8 5363804	8 5400063	46		
15	8 5138353	8 5176858	8 5215024	8 5252857	8 5290363	8 5327548	8 5364416	8 5400166	45		
16	8 5138997	8 5177497	8 5215657	8 5253485	8 5290985	8 5328165	8 5365028	8 5400269	44		
17	8 5139642	8 5178135	8 5216290	8 5254112	8 5291608	8 5328782	8 5365640	8 5400372	43		
18	8 5140286	8 5178774	8 5216923	8 5254740	8 5292230	8 5329399	8 5366251	8 5400475	42		
19	8 5140931	8 5179413	8 5217556	8 5255367	8 5292852	8 5330017	8 5366863	8 5400578	41		
20	8 5141575	8 5180051	8 5218189	8 5255995	8 5293474	8 5330633	8 5367474	8 5400681	40		
21	8 5142219	8 5180689	8 5218822	8 5256622	8 5294096	8 5331249	8 5368086	8 5400784	39		
22	8 5142863	8 5181328	8 5219455	8 5257249	8 5294718	8 5331865	8 5368697	8 5400887	38		
23	8 5143507	8 5181966	8 5220087	8 5257877	8 5295339	8 5332482	8 5369308	8 5400990	37		
24	8 5144150	8 5182604	8 5220720	8 5258504	8 5295961	8 5333098	8 5369919	8 5401093	36		
25	8 5144794	8 5183242	8 5221352	8 5259131	8 5296583	8 5333714	8 5370531	8 5401196	35		
26	8 5145438	8 5183880	8 5221985	8 5259757	8 5297204	8 5334330	8 5371142	8 5401299	34		
27	8 5146081	8 5184518	8 5222617	8 5260384	8 5297826	8 5334946	8 5371752	8 5401402	33		
28	8 5146725	8 5185156	8 5223249	8 5261011	8 5298447	8 5335562	8 5372363	8 5401505	32		
29	8 5147368	8 5185793	8 5223881	8 5261637	8 5299068	8 5336178	8 5372974	8 5401608	31		
30	8 5148011	8 5186431	8 5224513	8 5262264	8 5299690	8 5336794	8 5373585	8 5401711	30		
31	8 5148654	8 5187068	8 5225145	8 5262890	8 5300310	8 5337410	8 5374195	8 5401814	29		
32	8 5149297	8 5187706	8 5225777	8 5263517	8 5300931	8 5338026	8 5374806	8 5401917	28		
33	8 5149940	8 5188343	8 5226408	8 5264143	8 5301552	8 5338641	8 5375416	8 5402020	27		
34	8 5150583	8 5188980	8 5227040	8 5264769	8 5302173	8 5339257	8 5376026	8 5402123	26		
35	8 5151226	8 5189617	8 5227672	8 5265395	8 5302793	8 5339872	8 5376636	8 5402226	25		
36	8 5151869	8 5190254	8 5228303	8 5266021	8 5303411	8 5340487	8 5377247	8 5402329	24		
37	8 5152511	8 5190891	8 5228934	8 5266647	8 5304034	8 5341103	8 5377857	8 5402432	23		
38	8 5153154	8 5191528	8 5229566	8 5267273	8 5304655	8 5341718	8 5378466	8 5402535	22		
39	8 5153796	8 5192164	8 5230197	8 5267898	8 5305275	8 5342333	8 5379076	8 5402638	21		
40	8 5154438	8 5192801	8 5230828	8 5268524	8 5305895	8 5342948	8 5379686	8 5402741	20		
41	8 5155080	8 5193438	8 5231459	8 5269149	8 5306516	8 5343563	8 5380296	8 5402844	19		
42	8 5155722	8 5194074	8 5232090	8 5269775	8 5307136	8 5344177	8 5380905	8 5402947	18		
43	8 5156364	8 5194710	8 5232720	8 5270400	8 5307756	8 5344792	8 5381515	8 5403050	17		
44	8 5157006	8 5195347	8 5233351	8 5271025	8 5308375	8 5345407	8 5382124	8 5403153	16		
45	8 5157648	8 5195983	8 5233982	8 5271651	8 5308995	8 5346021	8 5382734	8 5403256	15		
46	8 5158290	8 5196619	8 5234612	8 5272276	8 5309615	8 5346636	8 5383343	8 5403359	14		
47	8 5158931	8 5197255	8 5235243	8 5272901	8 5310235	8 5347250	8 5383952	8 5403462	13		
48	8 5159573	8 5197891	8 5235873	8 5273525	8 5310854	8 5347864	8 5384561	8 5403565	12		
49	8 5160214	8 5198526	8 5236503	8 5274150	8 5311473	8 5348478	8 5385170	8 5403668	11		
50	8 5160856	8 5199162	8 5237133	8 5274775	8 5312093	8 5349092	8 5385779	8 5403771	10		
51	8 5161497	8 5199798	8 5237763	8 5275400	8 5312712	8 5349706	8 5386388	8 5403874	9		
52	8 5162138	8 5200433	8 5238393	8 5276024	8 5313331	8 5350320	8 5386997	8 5403977	8		
53	8 5162779	8 5201069	8 5239023	8 5276648	8 5313950	8 5350934	8 5387605	8 5404080	7		
54	8 5163420	8 5201704	8 5239653	8 5277273	8 5314569	8 5351548	8 5388214	8 5404183	6		
55	8 5164061	8 5202339	8 5240283	8 5277897	8 5315188	8 5352161	8 5388822	8 5404286	5		
56	8 5164701	8 5202974	8 5240912	8 5278521	8 5315807	8 5352775	8 5389431	8 5404389	4		
57	8 5165342	8 5203609	8 5241542	8 5279145	8 5316426	8 5353389	8 5390039	8 5404492	3		
58	8 5165983	8 5204244	8 5242171	8 5279769	8 5317044	8 5354002	8 5390647	8 5404595	2		
59	8 5166623	8 5204879	8 5242800	8 5280393	8 5317663	8 5354615	8 5391255	8 5404698	1		
60	8 5167264	8 5205514	8 5243430	8 5281017	8 5318281	8 5355224	8 5391863	8 5404801	0		
11	2'	6'	5'	4'	3'	2'	1'	0'	11		

COSINES.

88 Deg.

Dcg		TANGENTS								(247)
52'	53'	54'	55'	56'	57'	58'	59'			
08 513097	3 5169010	8 5 07902	8 5245860	8 5 8347	8 5320797	8 5357787	8 5394466	60		
18 5131625	8 5170518	8 5 08517	8 5246490	8 5284114	8 5321416	8 5358101	8 5395075	59		
26 51321	8 517089	8 5209173	8 5247120	8 5 8473	8 532035	8 5359015	8 5395683	58		
3 513291	3 5171533	8 5-09808	8 5 47749	8 5 85363	8 53 2654	8 5359629	8 539629	57		
4 5133564	3 517173	8 5 10143	8 5218379	8 5 8576	8 53 3273	8 5360242	8 5396900	56		
58 5131211	8 5172614	8 5 110 8	8 5249008	8 5 86611	8 5323892	8 5360856	8 5397509	55		
6 513435	8 5173155	8 5211713	8 5249638	8 5 87235	8 5324510	8 5361469	8 5398117	54		
7 51355	3 5174015	8 5 12348	8 525007	8 5287859	8 5325129	8 536208	8 53987	53		
8 5136110	3 5174735	8 521298	8 5250896	8 5 88485	8 5325747	8 5362696	8 5399333	52		
9 5136795	8 5175375	8 5 13617	8 5251525	8 5289106	8 5326366	8 5363309	8 5399941	51		
10 513741	5176016	8 5214 51	8 5252154	8 5 89730	8 53 6984	8 53639	8 5400549	50		
11 5138007	8 5176656	8 5214886	8 5252783	8 5290353	8 53 7602	8 5364535	8 5401157	49		
12 5138732	8 5177706	8 5215520	8 5253412	8 5290777	8 5328220	8 5365148	8 5401765	48		
13 5139318	8 5177735	8 5-16154	8 5254041	8 5 91600	8 53 8836	8 5365761	8 540237	47		
14 5140023	3 5178575	8 5216789	8 5254669	8 5292 23	8 5329456	8 5366373	8 5402980	46		
15 5140665	8 517913	8 5217123	8 5255298	8 529284	8 5330074	8 5366986	8 5403587	45		
16 5141314	8 5179854	8 5218057	8 5255926	8 5 93470	8 5330692	8 5367599	8 5404195	44		
17 5141959	8 5180471	8 5218690	8 5256555	8 5 94093	8 5331310	8 5368211	8 5404802	43		
18 5142604	8 5181133	8 521931	8 5257183	8 5 94716	8 5331927	8 5368823	8 5405409	42		
19 5143249	8 5181772	8 5 19958	8 5 57811	8 5 95338	8 5332545	8 5369436	8 5406017	41		
08 5143894	8 5182412	8 5220591	8 5258439	8 5295961	8 5333162	8 5370048	8 5406624	40		
1 5144539	8 5183051	8 52 1225	8 5259067	8 5296584	8 5333779	8 5370660	8 5407231	39		
22 5145183	8 5183690	8 52 1858	8 5259695	8 5297206	8 5334397	8 5371272	8 5407838	38		
23 5145828	8 5184329	8 522 412	8 526033	8 5297829	8 5335014	8 5371884	8 5408445	37		
24 5146472	8 5184967	8 5223125	8 5260951	8 5298451	8 5335631	8 5372496	8 5409051	36		
5 5147117	8 5185606	8 5 23758	8 5261579	8 5299073	8 5336248	8 5373108	8 5409658	35		
6 5147761	8 5186245	8 5221311	8 5262206	8 5299696	8 5336865	8 5373719	8 5410264	34		
27 5148405	8 5186883	8 5 2504	8 5262834	8 5300318	8 5337482	8 5374331	8 5410871	33		
28 5149049	8 5187522	8 5225657	8 5263461	8 5300940	8 5338098	8 5374942	8 5411477	32		
9 5149693	8 5188160	8 5 2690	8 5264088	8 5301562	8 5338715	8 5375554	8 5412084	31		
30 5150337	8 5188798	8 5 6922	8 5264716	8 5302183	8 5339331	8 5376165	8 5412690	30		
31 5150981	8 5189436	8 52 7555	8 5265343	8 5302805	8 5339948	8 5376777	8 5413296	29		
32 5151625	8 5190074	8 5228187	8 5265970	8 5303427	8 5340564	8 5377388	8 5413902	28		
33 5152268	8 5190712	8 5228820	8 5266597	8 5304048	8 5341181	8 5377999	8 5414508	27		
34 5152912	8 5191350	8 5229452	8 5267223	8 5304670	8 5341797	8 5378610	8 5415114	26		
3 5153555	8 5191988	8 5230084	8 5267850	8 5305291	8 5342413	8 5379221	8 5415720	25		
36 5154199	8 5192626	8 5230717	8 5268477	8 5305912	8 5343029	8 5379832	8 5416326	24		
37 5154842	8 5193263	8 5231349	8 5269103	8 5306534	8 5343645	8 5380442	8 5416931	23		
38 5155485	8 5193901	8 5231980	8 5269730	8 5307155	8 5344261	8 5381053	8 5417537	22		
39 5156128	8 5194538	8 5232612	8 5270356	8 5307776	8 5344876	8 5381664	8 5418142	21		
40 5156771	8 5195175	8 5233241	8 5270983	8 5308397	8 5345492	8 5382274	8 5418748	20		
41 5157414	8 5195813	8 5233870	8 5271609	8 5309018	8 5346108	8 5382884	8 5419353	19		
42 5158057	8 5196450	8 5234507	8 5272235	8 5309638	8 5346723	8 5383495	8 5419958	18		
43 5158699	8 5197087	8 5235139	8 5272861	8 5310259	8 5347339	8 5384105	8 5420563	17		
44 5159341	8 5197724	8 5235770	8 5273487	8 5310880	8 5347954	8 5384715	8 5421168	16		
45 5159984	8 5198361	8 5 36401	8 5274113	8 5311500	8 5348569	8 5385325	8 54 1773	15		
46 5160627	8 5198997	8 5237033	8 5274739	8 5312121	8 5349184	8 5385935	8 5422378	14		
47 5161269	8 5199634	8 5237664	8 5275364	8 5312741	8 5349799	8 5386545	8 5422983	13		
48 5161911	8 5200271	8 5238295	8 5275990	8 5313361	8 5350414	8 5387155	8 5423588	12		
49 5162553	8 5200907	8 5238926	8 5276615	8 5313981	8 5351029	8 5387765	8 5424193	11		
50 5163195	8 5201543	8 5239557	8 5277241	8 5314601	8 5351644	8 5388374	8 5424797	10		
51 5163837	8 5202180	8 5240187	8 5277866	8 5315221	8 5352259	8 5388984	8 5425402	9		
5 5164479	8 5202816	8 5240818	8 5278491	8 5315841	8 5352873	8 5389593	8 5426006	8		
53 5165121	8 520345	8 5241449	8 5279116	8 5316461	8 5353488	8 5390203	8 5426610	7		
54 5165762	8 5204088	8 5242079	8 5279741	8 5317081	8 5354102	8 5390812	8 5427214	6		
55 5166404	8 5204724	8 5242709	8 5280366	8 5317700	8 5354717	8 5391421	8 5427819	5		
56 5167045	8 5205360	8 5243340	8 5280991	8 5318320	8 5355331	8 5392030	8 5428423	4		
57 5167687	8 5205995	8 5 13970	8 5281616	8 5318939	8 5355945	8 5392639	8 5429027	3		
58 5168328	8 5206631	8 5244600	8 5282241	8 5319559	8 5356559	8 5393248	8 54 9631	2		
59 5168969	8 5207267	8 5245230	8 5282865	8 5320178	8 5357173	8 5393857	8 5430234	1		
60 5169610	8 5207900	8 5 45860	8 5283490	8 5320797	8 5357787	8 5394466	8 5430838	0		
71	7'	6'	5'	4'	3'	2'	1'	0'	71	

COTANGENTS,

88 Dcg.

0 Deg.		NATURAL SINES, &c.						Tab.	
	Sine	Dif.	Covers	Cofec.	Tang.	Cotang.	Secant	Veri	D. Cosine
0	0000000	2909	1000000	Infinita	0000000	Infinita	1 0000000	0000000	1 0000000
1	0002909	2909	9997091	3437 7468	0002909	3437 7467	1 0000000	0000000	9997091
2	0005818	2909	9994182	1718 8735	0005818	1718 8712	1 0000002	0000002	9994182
3	0008727	2909	9991273	1145 9157	0008727	1145 9153	1 0000004	0000004	9991273
4	0011636	2909	9988364	859 43689	0011636	859 43630	1 0000006	0000006	9988364
5	0014544	2909	9985456	687 54960	0014544	687 54887	1 0000008	0000008	9985456
6	0017453	2909	9982547	572 95809	0017453	572 95721	1 0000010	0000010	9982547
7	0020362	2909	9979638	491 10702	0020362	491 10600	1 0000012	0000012	9979638
8	0023271	2909	9976729	429 71873	0023271	429 71757	1 0000014	0000014	9976729
9	0026180	2909	9973820	381 97230	0026180	381 97099	1 0000016	0000016	9973820
10	0029089	2909	9970911	343 77516	0029089	343 77371	1 0000018	0000018	9970911
11	0031998	2909	9968002	312 52207	0031998	312 52137	1 0000020	0000020	9968002
12	0034907	2909	9965093	286 47945	0034907	286 47771	1 0000022	0000022	9965093
13	0037815	2909	9962185	264 44269	0037815	264 44040	1 0000024	0000024	9962185
14	0040724	2909	9959276	245 55407	0040724	245 55198	1 0000026	0000026	9959276
15	0043633	2909	9956367	229 18385	0043633	229 18166	1 0000028	0000028	9956367
16	0046542	2909	9953458	211 85995	0046542	211 85762	1 0000030	0000030	9953458
17	0049451	2909	9950549	202 22122	0049451	202 21875	1 0000032	0000032	9950549
18	0052360	2909	9947640	190 98680	0052360	190 98419	1 0000034	0000034	9947640
19	0055269	2909	9944732	180 93496	0055269	180 93200	1 0000036	0000036	9944732
20	0058177	2909	9941823	171 88831	0058177	171 88540	1 0000038	0000038	9941823
21	0061086	2909	9938914	163 70325	0061086	163 70019	1 0000040	0000040	9938914
22	0063995	2909	9936005	156 26228	0063995	156 25908	1 0000042	0000042	9936005
23	0066904	2909	9933096	149 46837	0066904	149 46502	1 0000044	0000044	9933096
24	0069813	2909	9930187	143 24061	0069813	143 23712	1 0000046	0000046	9930187
25	0072721	2909	9927279	137 51108	0072721	137 50745	1 0000048	0000048	9927279
26	0075630	2909	9924370	132 22229	0075630	132 21851	1 0000050	0000050	9924370
27	0078539	2909	9921461	127 32526	0078539	127 32131	1 0000052	0000052	9921461
28	0081448	2909	9918552	122 77803	0081448	122 77396	1 0000054	0000054	9918552
29	0084357	2909	9915643	118 54440	0084357	118 54018	1 0000056	0000056	9915643
30	0087266	2909	9912735	114 59301	0087266	114 58865	1 0000058	0000058	9912735
31	0090174	2909	9909826	110 89656	0090174	110 89205	1 0000060	0000060	9909826
32	0093083	2909	9906917	107 43114	0093083	107 42648	1 0000062	0000062	9906917
33	0095992	2909	9904008	104 17574	0095992	104 17094	1 0000064	0000064	9904008
34	0098900	2909	9901100	101 11185	0098900	101 10690	1 0000066	0000066	9901100
35	0101809	2909	9898191	98 22303	0101809	98 21794	1 0000068	0000068	9898191
36	0104718	2909	9895282	95 49471	0104718	95 48947	1 0000070	0000070	9895282
37	0107627	2909	9892373	92 91386	0107627	92 90848	1 0000072	0000072	9892373
38	0110535	2909	9889465	90 46886	0110535	90 46336	1 0000074	0000074	9889465
39	0113444	2909	9886556	88 14924	0113444	88 14357	1 0000076	0000076	9886556
40	0116353	2909	9883647	85 94560	0116353	85 93979	1 0000078	0000078	9883647
41	0119261	2909	9880739	83 84947	0119261	83 84350	1 0000080	0000080	9880739
42	0122170	2909	9877830	81 85315	0122170	81 84704	1 0000082	0000082	9877830
43	0125079	2909	9874921	79 94968	0125079	79 94343	1 0000084	0000084	9874921
44	0127987	2909	9872013	78 13274	0127987	78 12634	1 0000086	0000086	9872013
45	0130896	2909	9869104	76 39655	0130896	76 39009	1 0000088	0000088	9869104
46	0133805	2909	9866195	74 73585	0133805	74 72916	1 0000090	0000090	9866195
47	0136713	2909	9863287	73 14582	0136713	73 13899	1 0000092	0000092	9863287
48	0139622	2909	9860378	71 62205	0139622	71 61507	1 0000094	0000094	9860378
49	0142530	2909	9857470	70 16047	0142530	70 15334	1 0000096	0000096	9857470
50	0145439	2909	9854561	68 75736	0145439	68 75087	1 0000098	0000098	9854561
51	0148348	2909	9851652	67 40927	0148348	67 40185	1 0000100	0000100	9851652
52	0151256	2909	9848744	66 11303	0151256	66 10547	1 0000102	0000102	9848744
53	0154165	2909	9845835	64 86571	0154165	64 85808	1 0000104	0000104	9845835
54	0157073	2909	9842927	63 66459	0157073	63 65671	1 0000106	0000106	9842927
55	0159982	2909	9840018	62 50715	0159982	62 49915	1 0000108	0000108	9840018
56	0162890	2909	9837110	61 39105	0162890	61 38295	1 0000110	0000110	9837110
57	0165799	2909	9834201	60 31410	0165799	60 30582	1 0000112	0000112	9834201
58	0168707	2909	9831293	59 27430	0168707	59 26572	1 0000114	0000114	9831293
59	0171616	2909	9828384	58 26975	0171616	58 26174	1 0000116	0000116	9828384
60	0174524	2909	9825476	57 29868	0174524	57 28962	1 0000118	0000118	9825476
	Cosine	Dif.	Veri	Secant	Cotang.	Tang.	Cofec.	Covers	D. Sine

Deg.

Log. Sines, &c. (249)											
Deg	Sine	Diff	Cofec.	Verfeds	Tang.	Diff	Cotang	Covers	Secant	D	Cofine
0	Inf Neg	Inf	Inf	Inf Neg	Inf Neg	Inf	Inf	10 000000	10 000000	0	10 000000
1	6 4637261	3010300	13 5362739	2 6264222	6 4637261	3010301	13 5362739	9 9998737	10 0000000	1	10 0000000
2	6 7647561	1760912	13 2352437	3 2284822	6 7647562	1760913	13 2352438	9 9997473	10 0000001	2	9 9999999
3	6 9408473	1249381	13 0591527	3 5806647	6 9408475	1249388	13 0591525	9 9996208	10 0000002	3	9 9999998
4	7 0657860	969100	12 9342140	3 8305422	7 0657863	969101	12 9342137	9 9994944	10 0000003	4	9 9999997
5	7 1026960	791811	12 8373040	4 0243022	7 1026964	791814	12 8373036	9 9993679	10 0000005	5	9 9999995
6	7 2418771	661468	12 7581229	4 18 7246	7 2418778	669470	12 7581222	9 9992414	10 0000007	6	9 9999993
7	7 3088239	579918	12 6911761	4 3166182	7 3088248	5799 1	12 6911752	9 9991148	10 0000009	7	9 9999991
8	7 3668157	511524	12 6331843	4 4326020	7 3668169	511527	12 6331831	9 9989882	10 0000012	8	9 9999988
9	7 4179601	457574	12 5820319	4 5349070	7 4179606	457577	12 5820304	9 9988615	10 0000015	9	9 9999985
10	7 4637255	413926	12 5362745	4 6264219	7 4637273	413930	12 5362727	9 9987348	10 0000018	10	9 9999982
11	7 5051181	377884	12 4948819	4 7092072	7 5051203	377888	12 4948797	9 9986081	10 0000022	11	9 9999978
12	7 54 9065	347611	12 4510935	4 7847843	7 5429091	347621	12 4510909	9 9984814	10 0000026	12	9 9999974
13	7 5770684	321846	12 4123316	4 8543084	7 5770715	321851	12 4123285	9 9983546	10 0000031	13	9 9999969
14	7 6018530	291630	12 3901470	4 9186777	7 6018566	291635	12 3901434	9 9982278	10 0000036	14	9 9999964
15	7 6398160	280285	12 3601810	4 9786041	7 6398201	280291	12 3601799	9 9981009	10 0000041	15	9 9999959
16	7 6678445	263288	12 3321555	5 0346614	7 6678492	263294	12 3321508	9 9979740	10 0000047	16	9 9999953
17	7 6941733	248233	12 3058267	5 0873192	7 6941786	248240	12 3058214	9 9978471	10 0000053	17	9 9999947
18	7 7189966	234809	12 2810034	5 1369663	7 7190026	234815	12 2809974	9 9977 01	10 0000060	18	9 9999940
19	7 74 1775	222762	12 2575225	5 1839283	7 7424841	222769	12 2575159	9 9975931	10 0000066	19	9 9999931
20	7 7647537	211890	12 2352463	5 2284810	7 7647610	211898	12 235 390	9 9974660	10 0000073	20	9 9999927
21	7 7859427	202031	12 2140573	5 2708595	7 7859508	20 039	12 2140492	9 9973389	10 0000081	21	9 9999919
22	7 8061458	193049	12 1938542	5 3112661	7 8061547	193957	12 1938453	9 9972118	10 0000089	22	9 9999911
23	7 8254507	184831	12 1745493	5 3498763	7 8254604	184840	12 1745396	9 9970846	10 0000097	23	9 9999903
24	7 8439338	177285	12 156066	5 3868430	7 8439444	177294	12 1560556	9 9969574	10 0000106	24	9 9999894
25	7 8616623	170330	12 1383371	5 4223003	7 8616738	170339	12 1383262	9 9968302	10 0000115	25	9 9999885
26	7 8786953	163901	12 1213047	5 4563669	7 8787077	163911	12 121 923	9 9967029	10 0000124	26	9 9999876
27	7 8950854	157939	12 1049146	5 4891473	7 8950988	157950	12 1049012	9 9965756	10 0000134	27	9 9999866
28	7 9108793	152397	12 0891207	5 5207359	7 9108938	152406	12 0891062	9 9964483	10 0000144	28	9 9999856
29	7 9261190	147229	12 0738810	5 5512157	7 9261344	147240	12 0738656	9 9963209	10 0000155	29	9 9999845
30	7 9408419	142400	12 0591581	5 5806620	7 9408584	142412	12 0591416	9 9961935	10 0000165	30	9 9999835
31	7 9550819	137879	12 0449181	5 6091427	7 9550996	137890	12 0449004	9 9960660	10 0000177	31	9 9999823
32	7 9688698	133636	12 0311302	5 6367191	7 9688886	133648	12 0311114	9 9959385	10 0000188	32	9 9999812
33	7 9822334	129616	12 0177666	5 6634468	7 9822534	129658	12 0177466	9 9958110	10 0000200	33	9 9999800
34	7 9951980	125887	12 0048020	5 6893765	7 9952192	125900	12 0047808	9 9956834	10 0000212	34	9 9999788
35	8 0077867	122340	11 9922133	5 7145546	8 0078092	122353	11 9921908	9 9955558	10 0000225	35	9 9999775
36	8 0200207	118988	11 9799793	5 7390233	8 0200445	119001	11 9799555	9 9954284	10 0000238	36	9 9999762
37	8 0319195	115814	11 9680805	5 7628215	8 0319446	115828	11 9680554	9 9953005	10 0000252	37	9 9999748
38	8 0435009	112805	11 9564991	5 7859830	8 0435274	112820	11 9564726	9 9951728	10 0000 65	38	9 9999735
39	8 0547814	109949	11 9452186	5 8085468	8 0548094	109963	11 9451906	9 9950450	10 0000279	39	9 9999721
40	8 0657763	107 34	11 9342237	5 8305373	8 0658057	107249	11 9341943	9 9949172	10 0000294	40	9 9999706
41	8 0764997	104649	11 9235003	5 8519848	8 0765306	104664	11 9234694	9 9947894	10 0000309	41	9 9999691
42	8 0869646	102186	11 9130354	5 8729154	8 0869970	102202	11 9130030	9 9946615	10 0000324	42	9 9999676
43	8 0971832	99837	11 9028168	5 8933535	8 0972172	99853	11 9027828	9 9945336	10 0000340	43	9 9999660
44	8 1071669	97593	11 8928331	5 9133217	8 10720 5	97609	11 8927975	9 9944057	10 0000356	44	9 9999644
45	8 1169262	95448	11 8830738	5 9328411	8 1169634	95465	11 8830366	9 9942777	10 0000372	45	9 9999628
46	8 1264710	93394	11 8735 90	5 9519314	8 1265099	93411	11 8734901	9 9941497	10 0000389	46	9 9999611
47	8 1358104	91428	11 8641896	5 970611	8 1358510	91446	11 8641490	9 9940217	10 0000406	47	9 9999594
48	8 1449532	89543	11 8550468	5 9888977	8 1449956	89560	11 8550044	9 9938936	10 0000423	48	9 9999577
49	8 1539075	87733	11 8460925	6 0068070	8 1539516	87751	11 8460484	9 9937654	10 0000441	49	9 9999559
50	8 1626808	85996	11 8373192	6 0 43546	8 1627267	86015	11 8372733	9 9936373	10 0000459	50	9 9999541
51	8 1712804	84325	11 8287196	6 0415546	8 1713282	84344	11 8286718	9 9935091	10 0000478	51	9 9999522
52	8 1797129	82719	11 8 02871	6 0584 06	8 1797626	82738	11 8202374	9 9933808	10 0000497	52	9 9999503
53	8 187 848	8117	11 8120152	6 0749654	8 1880364	8119	11 8119636	9 993 526	10 0000516	53	9 9999484
54	8 1961020	79683	11 8038980	6 0912008	8 1961556	79703	11 8038444	9 9931243	10 0000536	54	9 9999464
55	8 2040703	78246	11 7959297	6 1071384	8 2041259	78267	11 7958741	9 9929959	10 0000556	55	9 9999444
56	8 2118949	76862	11 7881051	6 1227887	8 2119526	76882	11 7880474	9 99 8675	10 0000576	56	9 9999424
57	8 2195811	75524	11 7804189	6 1381620	8 2196408	75545	11 7803592	9 9927391	10 0000597	57	9 9999403
58	8 2271335	74233	11 7728665	6 1532679	8 2271953	74255	11 7728047	9 9926106	10 0000618	58	9 9999382
59	8 2345568	72985	11 7654432	6 1681156	8 2346208	73007	11 7653792	9 9924821	10 0000640	59	9 9999360
60	8 2418553		11 7581447	6 1827137	8 2419215		11 7580785	9 9923536	10 0000662	60	9 9999338
	Cofine	Diff	Secant	Covers	Cotang	Diff	Tang	Verfeds	Cofec	D	Sine

1 Deg.		NATURAL SINES, &c							Tab 10	
1	Sine	Dif	Covers	Cofec.	Tang.	Cotang	Secant	Verf.	D.	Cofine
0	0174524	2908	9825476	57 298688	0174551	57 289962	1 0001523	0001523	51	9998477
1	0177432	2909	9822568	56 359462	0177460	56 350590	1 0001574	0001574	52	9998426
2	0180341	2908	9819659	55 450534	0180370	55 441517	1 0001627	0001626	53	9998374
3	0183249	2909	9816751	54 570464	0183280	54 561300	1 0001679	0001679	54	9998321
4	0186158	2908	9813842	53 717896	0186190	53 708587	1 0001733	0001733	54	9998267
5	0189066	2908	9810934	52 891564	0189100	52 882109	1 0001788	0001787	56	9998213
6	0191974	2909	9808026	52 090272	0192010	52 080673	1 0001843	0001843	56	9998157
7	0194883	2908	9805117	51 312902	0194920	51 303157	1 0001900	0001899	57	9998101
8	0197791	2908	9802209	50 558390	0197830	50 548506	1 0001957	0001956	58	9998044
9	0200699	2909	9799301	49 825762	0200740	49 815726	1 0002015	0002014	59	9997986
10	0203608	2909	9796392	49 114062	0203650	49 103881	1 0002073	0002073	60	9997927
11	0206516	2908	9793484	48 422411	0206560	48 412084	1 0002133	0002133	60	9997867
12	0209424	2908	9790576	47 749974	0209470	47 739501	1 0002194	0002193	62	9997807
13	0212332	2909	9787668	47 095961	0212380	47 085343	1 0002255	0002255	62	9997745
14	0215241	2908	9784759	46 459625	0215291	46 448862	1 0002317	0002317	63	9997683
15	0218149	2908	9781851	45 840260	0218201	45 829351	1 0002380	0002380	64	9997620
16	0221057	2908	9778943	45 237195	0221111	45 226141	1 0002444	0002444	64	9997556
17	0223965	2908	9776035	44 649795	0224021	44 638596	1 0002509	0002508	66	9997492
18	0226873	2908	9773127	44 077458	0226932	44 066113	1 0002575	0002574	66	9997426
19	0229781	2909	9770219	43 519612	0229842	43 508122	1 0002641	0002640	68	9997360
20	0232690	2908	9767310	42 975713	0232753	42 964077	1 0002708	0002708	68	9997292
21	0235598	2908	9764402	42 445245	0235663	42 433464	1 0002776	0002776	68	9997224
22	0238506	2908	9761494	41 927717	0238574	41 915790	1 0002845	0002844	70	9997156
23	0241414	2908	9758586	41 422660	0241484	41 410588	1 0002915	0002914	71	9997086
24	0244322	2908	9755678	40 929630	0244395	40 917412	1 0002986	0002985	72	9997015
25	0247230	2908	9752770	40 448201	0247305	40 435837	1 0003058	0003057	72	9996943
26	0250138	2908	9749862	39 977969	0250216	39 965460	1 0003130	0003129	73	9996871
27	0253046	2908	9746954	39 518549	0253127	39 505895	1 0003203	0003202	74	9996798
28	0255954	2908	9744046	39 069571	0256038	39 056771	1 0003277	0003276	75	9996724
29	0258862	2907	9741138	38 630683	0258948	38 617738	1 0003352	0003351	76	9996649
30	0261769	2908	9738231	38 201550	0261859	38 188459	1 0003428	0003427	76	9996573
31	0264677	2908	9735323	37 781849	0264770	37 768613	1 0003505	0003503	78	9996497
32	0267585	2908	9732415	37 371273	0267681	37 357892	1 0003582	0003581	78	9996419
33	0270493	2908	9729507	36 969528	0270592	36 956001	1 0003660	0003659	79	9996341
34	0273401	2908	9726599	36 576332	0273503	36 562659	1 0003739	0003738	80	9996262
35	0276309	2907	9723691	36 191414	0276414	36 177596	1 0003820	0003818	81	9996182
36	0279216	2908	9720784	35 814517	0279325	35 800553	1 0003900	0003899	81	9996101
37	0282124	2908	9717876	35 445391	0282236	35 431282	1 0003982	0003980	83	9996020
38	0285032	2908	9714968	35 083800	0285148	35 069546	1 0004065	0004063	83	9995937
39	0287940	2907	9712060	34 729515	0288059	34 715115	1 0004148	0004146	84	9995854
40	0290847	2908	9709153	34 382316	0290970	34 367771	1 0004232	0004230	86	9995770
41	0293755	2907	9706245	34 041994	0293882	34 027303	1 0004317	0004316	86	9995684
42	0296663	2908	9703338	33 708345	0296793	33 693509	1 0004403	0004401	87	9995599
43	0299570	2908	9700430	33 381176	0299705	33 366194	1 0004490	0004488	88	9995512
44	0302478	2907	9697522	33 060300	0302616	33 045173	1 0004578	0004576	88	9995424
45	0305385	2908	9694615	32 745537	0305528	32 730264	1 0004666	0004664	89	9995336
46	0308293	2907	9691707	32 436713	0308439	32 421295	1 0004756	0004753	89	9995247
47	0311200	2908	9688800	32 133663	0311351	32 118099	1 0004846	0004843	90	9995157
48	0314108	2907	9685892	31 836225	0314263	31 820516	1 0004937	0004934	91	9995066
49	0317015	2907	9682985	31 544246	0317174	31 528392	1 0005029	0005026	92	9994974
50	0319922	2908	9680078	31 257577	0320086	31 241577	1 0005121	0005119	93	9994881
51	0322830	2907	9677170	30 976074	0322998	30 959928	1 0005215	0005212	93	9994788
52	0325737	2907	9674263	30 699598	0325910	30 683307	1 0005309	0005307	95	9994693
53	0328644	2908	9671356	30 428017	0328822	30 411580	1 0005405	0005402	95	9994598
54	0331552	2907	9668448	30 161201	0331734	30 144619	1 0005501	0005498	96	9994502
55	0334459	2907	9665541	29 899026	0334646	29 882299	1 0005598	0005595	97	9994405
56	0337366	2908	9662634	29 641373	0337558	29 624499	1 0005696	0005692	99	9994308
57	0340274	2907	9659726	29 388124	0340471	29 371106	1 0005794	0005791	99	9994209
58	0343181	2907	9656819	29 139169	0343383	29 122005	1 0005894	0005890	101	9994110
59	0346088	2907	9653912	28 894398	0346295	28 877089	1 0005994	0005991	101	9994009
60	0348995	2907	9651005	28 653708	0349208	28 636253	1 0006095	0006092		9993908
	Cofine	Dif	Verf	Secant	Cotan.	Tang	Cofec	Covers	D	Sine

1 Deg		Log SINES, &c										(2, 1)	
7	Sine	Diff	Cofec	Verfeds	Tang	Diff	Cotang	Covers	Secant	D	Cofine		
0	8 2418553	71779	11 7581447	6 1827137	8 2419215	71800	11 7580785	9 9923536	10 0000662	22	9 9999338	50	
1	8 2490332	70611	11 7509668	6 1970705	8 2491015	70634	11 7508985	9 9922250	10 0000584	22	9 9999316	51	
2	8 2560943	69481	11 7439057	6 2111938	8 2561649	69501	11 7438351	9 9920964	10 0000706	23	9 9999294	52	
3	8 2630424	68386	11 7369576	6 2250912	8 2631153	68410	11 7368847	9 9919678	10 0000729	23	9 9999271	53	
4	8 2698810	67326	11 7301190	6 2387696	8 2699563	67349	11 7300437	9 9918391	10 0000753	24	9 9999249	54	
5	8 2766136	66298	11 7233864	6 2522360	8 2766912	66322	11 7233088	9 9917104	10 0000776	24	9 9999226	55	
6	8 2832434	65300	11 7167566	6 2654968	8 2833234	65325	11 7166766	9 9915816	10 0000800	25	9 9999204	56	
7	8 2897734	64333	11 7102266	6 2785581	8 2898559	64358	11 7101441	9 9914528	10 0000825	25	9 9999175	57	
8	8 2962067	63393	11 7037933	6 2914259	8 2962917	63418	11 7037083	9 9913240	10 0000850	25	9 9999152	58	
9	8 3025460	62481	11 6974540	6 3041058	8 3026335	62507	11 6973665	9 9911951	10 0000875	25	9 9999125	59	
10	8 3087941	61595	11 6912059	6 3166033	8 3088842	61620	11 6911158	9 9910662	10 0000900	26	9 9999100	60	
11	8 3149536	60733	11 6850464	6 3289235	8 3150462	60759	11 6849538	9 9909372	10 0000926	26	9 9999074	61	
12	8 3210269	59894	11 6789731	6 3410714	8 3211221	59922	11 6788779	9 9908084	10 0000953	26	9 9999048	62	
13	8 3270163	59080	11 6729837	6 3530516	8 3271143	59106	11 6728857	9 9906792	10 0000979	27	9 9999021	63	
14	8 3329243	58286	11 6670757	6 3648689	8 3330249	58314	11 6669751	9 9905501	10 0001006	27	9 9998994	64	
15	8 3387529	57514	11 6612471	6 3765275	8 3388563	57542	11 6611437	9 9904210	10 0001034	27	9 9998967	65	
16	8 3445043	56762	11 6554957	6 3880317	8 3446105	56790	11 6553895	9 9902919	10 0001061	28	9 9998939	66	
17	8 3501805	56030	11 6498195	6 3993855	8 3502895	56058	11 6497105	9 9901627	10 0001089	28	9 9998911	67	
18	8 3557835	55315	11 6442165	6 4105928	8 3558953	55344	11 6441047	9 9900335	10 0001118	29	9 9998882	68	
19	8 3613150	54619	11 6386850	6 4216573	8 3614297	54648	11 6385703	9 9899043	10 0001147	29	9 9998853	69	
20	8 3667769	53941	11 6332231	6 4325826	8 3668945	53970	11 6331055	9 9897750	10 0001176	30	9 9998824	70	
21	8 3721710	53278	11 6278290	6 4433722	8 3722915	53308	11 6277085	9 9896457	10 0001206	30	9 9998794	71	
22	8 3774988	52632	11 6225012	6 4540294	8 3776223	52663	11 6223777	9 9895163	10 0001236	30	9 9998764	72	
23	8 3827620	52002	11 6172380	6 4645573	8 3828886	52032	11 6171114	9 9893869	10 0001266	31	9 9998734	73	
24	8 3879622	51386	11 6120378	6 4749592	8 3880918	51418	11 6119082	9 9892575	10 0001297	31	9 9998703	74	
25	8 3931008	50785	11 6068992	6 4852380	8 3932336	50816	11 6067664	9 9891280	10 0001328	31	9 9998673	75	
26	8 3981793	50197	11 6018207	6 4953965	8 3983152	50229	11 6016848	9 9889985	10 0001359	32	9 9998641	76	
27	8 4031990	49624	11 5968010	6 5054376	8 4033381	49656	11 5966619	9 9888689	10 0001391	32	9 9998609	77	
28	8 4081614	49062	11 5918386	6 5153639	8 4083037	49095	11 5916963	9 9887393	10 0001423	33	9 9998577	78	
29	8 4130676	48514	11 5869324	6 5251780	8 4132132	48547	11 5867868	9 9886097	10 0001456	32	9 9998544	79	
30	8 4179190	47978	11 5820810	6 53488	8 4180679	48011	11 5819321	9 9884801	10 0001488	34	9 9998512	80	
31	8 4227168	47453	11 5772832	6 5444797	8 4228690	47486	11 5771310	9 9883503	10 0001522	33	9 9998478	81	
32	8 4274621	46940	11 5725379	6 5539720	8 4276176	46974	11 5723824	9 9882206	10 0001555	34	9 9998445	82	
33	8 4321561	46438	11 5678439	6 5633616	8 4323150	4647	11 5676850	9 9880908	10 0001589	35	9 9998411	83	
34	8 4367999	45945	11 5632001	6 5726509	8 4369622	45981	11 5630378	9 9879610	10 0001624	34	9 9998376	84	
35	8 4413944	45465	11 5586056	6 5818418	8 4415603	45500	11 5584397	9 9878312	10 0001658	36	9 9998342	85	
36	8 4459409	44993	11 5540591	6 5909365	8 4461103	45028	11 5538897	9 9877013	10 0001694	35	9 9998306	86	
37	8 4504402	44532	11 5495598	6 5999369	8 4506131	44568	11 5493869	9 9875713	10 0001729	36	9 9998271	87	
38	8 4548934	44079	11 5451066	6 6088450	8 4550699	44115	11 5449301	9 9874414	10 0001765	36	9 9998237	88	
39	8 4593013	43636	11 5406987	6 6176626	8 4594814	43672	11 5405186	9 9873114	10 0001801	37	9 9998199	89	
40	8 4636649	43201	11 5363351	6 6263916	8 4638486	43239	11 5361514	9 9871813	10 0001838	37	9 9998162	90	
41	8 4679850	42776	11 5320150	6 6350337	8 4681725	42813	11 5318275	9 9870513	10 0001875	37	9 9998125	91	
42	8 4722626	42358	11 5277374	6 6435907	8 4724538	42395	11 5275462	9 9869211	10 0001912	38	9 9998088	92	
43	8 4764984	41948	11 5235016	6 6520642	8 4766933	41987	11 5233067	9 9867910	10 0001950	38	9 9998050	93	
44	8 4806932	41547	11 5193068	6 6604558	8 480890	41585	11 5191080	9 9866608	10 0001988	38	9 9998012	94	
45	8 4848479	41153	11 5151521	6 6687671	8 4850505	41191	11 5149495	9 9865306	10 0002026	39	9 9997974	95	
46	8 4889632	40766	11 5110368	6 6769996	8 4891696	40806	11 5108304	9 9864003	10 0002065	39	9 9997935	96	
47	8 4930398	40386	11 5069602	6 6851541	8 4932502	40426	11 5067498	9 9862700	10 0002104	40	9 9997896	97	
48	8 4970784	40011	11 5029216	6 6932340	8 4972928	40054	11 5027072	9 9861396	10 0002144	39	9 9997857	98	
49	8 5010798	39649	11 4989202	6 7012389	8 501982	39689	11 4987018	9 9860093	10 0002183	41	9 9997817	99	
50	8 5050447	39289	11 4949553	6 7091706	8 5052671	39330	11 4947329	9 9858788	10 0002224	40	9 9997777	100	
51	8 5089736	38937	11 4910264	6 7170305	8 5092001	38977	11 4907999	9 9857484	10 0002264	41	9 9997736		
52	8 5128673	38591	11 4871327	6 7248199	8 5130978	38632	11 4869022	9 9856179	10 0002305	41	9 9997695		
53	8 5167264	38250	11 4832736	6 7325400	8 5169610	38292	11 4830390	9 9854873	10 0002347	41	9 9997655		
54	8 5205514	37916	11 4794486	6 7401921	8 5207902	37958	11 4792098	9 9853568	10 0002388	42	9 9997612		
55	8 5243430	37587	11 4756570	6 7477748	8 5245660	37630	11 4754140	9 9852262	10 0002430	43	9 9997570		
56	8 5281017	37264	11 4718983	6 7552970	8 5283490	37307	11 4716510	9 9850955	10 0002474	43	9 9997528		
57	8 5318281	36947	11 4681719	6 7627520	8 5320797	36990	11 4679203	9 9849648	10 0002516	43	9 9997487		
58	8 5355228	36635	11 4644772	6 7701436	8 5357787	36679	11 4644213	9 9848341	10 0002559	43	9 9997447		
59	8 5391863	36329	11 460813	6 7774728	8 5394466	36372	11 4605534	9 9847033	10 0002602	44	9 9997407		
60	8 5428192		11 4571808	6 7847406	8 5430838		11 4569162	9 9845725	10 0002646		9 9997367		
Cofine	Diff	Secant	Covers	Cotang	Diff	Tang	Verfeds	Cofec	D	Sine			Deg

2 Deg.		NATURAL SINES, &c.							Lib. 10	
7	Sine	Dif	Covers	Cofec.	Tang.	Cotang	Secant	Verif.	D.	Cohne
0	0348995	2907	9651005	28 653708	0349208	28 636253	1 0006095	0006092	102	9993108 69
1	0351902	2907	9648098	28 416997	0352120	28 399391	1 0006198	0006194	102	9993806 59
2	0354809	2907	9645191	28 184168	0355033	28 166422	1 0006300	0006296	104	9993704 59
3	0357716	2907	9642284	27 955125	0357945	27 937233	1 0006404	0006400	105	9993600 57
4	0360623	2907	9639377	27 729777	0360858	27 711740	1 0006509	0006505	105	9993495 56
5	0363530	2907	9636470	27 508035	0363771	27 489853	1 0006614	0006610	106	9993390 55
6	0366437	2907	9633563	27 289814	0366683	27 271486	1 0006721	0006716	107	9993284 54
7	0369344	2907	9630656	27 075030	0369596	27 056557	1 0006828	0006823	108	9993177 53
8	0372251	2907	9627749	26 863603	0372509	26 844984	1 0006936	0006931	109	9993069 52
9	0375158	2907	9624842	26 655455	0375422	26 636690	1 0007045	0007040	109	9992960 51
10	0378065	2907	9621935	26 450510	0378335	26 431600	1 0007154	0007149	111	9992851 50
11	0380971	2906	9619029	26 248694	0381248	26 229635	1 0007265	0007260	111	9992740 49
12	0383878	2907	9616122	26 049937	0384161	26 030736	1 0007376	0007371	112	9992629 48
13	0386785	2907	9613215	25 854169	0387074	25 834823	1 0007489	0007483	113	9992517 47
14	0389692	2906	9610308	25 661324	0389988	25 641832	1 0007602	0007596	114	9992404 46
15	0392598	2907	9607402	25 471337	0392901	25 451700	1 0007716	0007710	114	9992290 45
16	0395505	2906	9604495	25 284144	0395814	25 264361	1 0007830	0007824	116	9992176 44
17	0398411	2907	9601589	25 099685	0398728	25 079757	1 0007946	0007940	116	9992060 43
18	0401318	2906	9598682	24 917900	0401641	24 897821	1 0008063	0008056	117	9991944 42
19	0404224	2907	9595776	24 738731	0404555	24 718512	1 0008180	0008173	118	9991827 41
20	0407131	2906	9592869	24 562123	0407469	24 544758	1 0008298	0008291	119	9991709 40
21	0410037	2907	9589963	24 388020	0410383	24 367509	1 0008417	0008410	120	9991590 39
22	0412944	2906	9587056	24 216370	0413296	24 195714	1 0008537	0008530	120	9991470 38
23	0415850	2907	9584150	24 047121	0416210	24 026520	1 0008658	0008650	122	9991350 37
24	0418757	2906	9581243	23 880224	0419124	23 859277	1 0008779	0008772	122	9991228 36
25	0421663	2906	9578337	23 715630	0422038	23 694537	1 0008902	0008894	123	9991106 35
26	0424569	2906	9575431	23 553291	0424952	23 532052	1 0009025	0009017	124	9990983 34
27	0427475	2907	9572525	23 393161	0427866	23 371777	1 0009149	0009141	125	9990859 33
28	0430382	2906	9569618	23 235196	0430781	23 213666	1 0009274	0009266	125	9990734 32
29	0433288	2906	9566712	23 079351	0433695	23 057677	1 0009400	0009391	127	9990609 31
30	0436194	2906	9563806	22 925586	0436609	22 903766	1 0009527	0009518	127	9990482 30
31	0439100	2906	9560900	22 773857	0439524	22 751892	1 0009654	0009645	128	9990355 29
32	0442006	2906	9557994	22 624126	0442438	22 602015	1 0009783	0009773	129	9990227 28
33	0444912	2906	9555088	22 476353	0445353	22 454096	1 0009912	0009902	130	9990098 27
34	0447818	2906	9552182	22 330499	0448268	22 308097	1 0010042	0010032	131	9989968 26
35	0450724	2906	9549276	22 186528	0451183	22 163980	1 0010173	0010163	131	9989837 25
36	0453630	2906	9546370	22 044403	0454097	22 021710	1 0010305	0010294	133	9989706 24
37	0456536	2906	9543464	21 904090	0457012	21 881251	1 0010438	0010427	133	9989573 23
38	0459442	2905	9540558	21 765553	0459927	21 742369	1 0010571	0010560	134	9989440 22
39	0462347	2906	9537653	21 628759	0462842	21 605630	1 0010705	0010694	134	9989306 21
40	0465253	2906	9534747	21 493676	0465757	21 470401	1 0010841	0010829	135	9989171 20
41	0468159	2906	9531841	21 360272	0468673	21 336851	1 0010977	0010965	136	9989035 19
42	0471065	2905	9528935	21 228515	0471588	21 204949	1 0011114	0011101	136	9988899 18
43	0473970	2906	9526030	21 098376	0474503	21 074664	1 0011251	0011239	138	9988761 17
44	0476876	2905	9523124	20 969824	0477419	20 945966	1 0011390	0011377	139	9988623 16
45	0479781	2906	9520219	20 842830	0480334	20 818828	1 0011529	0011516	140	9988484 15
46	0482687	2905	9517313	20 717368	0483250	20 693220	1 0011670	0011656	141	9988344 14
47	0485592	2906	9514408	20 593409	0486166	20 569115	1 0011811	0011797	142	9988203 13
48	0488498	2905	9511502	20 470926	0489082	20 446486	1 0011953	0011939	142	9988061 12
49	0491403	2905	9508597	20 349893	0491997	20 325308	1 0012096	0012081	144	9987919 11
50	0494308	2906	9505692	20 230284	0494913	20 205553	1 0012239	0012225	144	9987775 10
51	0497214	2905	9502786	20 112075	0497829	20 087199	1 0012384	0012369	145	9987631 9
52	0500119	2905	9499881	19 995241	0500746	19 970219	1 0012529	0012514	146	9987486 8
53	0503024	2905	9496976	19 879758	0503662	19 854591	1 0012676	0012660	146	9987340 7
54	0505929	2906	9494071	19 765604	0506578	19 740291	1 0012823	0012808	148	9987194 6
55	0508835	2905	9491165	19 652754	0509495	19 627296	1 0012971	0012954	148	9987046 5
56	0511740	2905	9488260	19 541187	0512411	19 515584	1 0013120	0013102	150	9986898 4
57	0514645	2905	9485355	19 430882	0515328	19 405133	1 0013269	0013252	150	9986748 3
58	0517550	2905	9482450	19 321816	0518244	19 295922	1 0013420	0013402	151	9986598 2
59	0520455	2905	9479545	19 213970	0521161	19 187930	1 0013571	0013553	152	9986447 1
60	0523360	2905	9476640	19 107323	0524078	19 081137	1 0013723	0013705		9986295 0
	Cohne	Dif	Verif.	Secant	Cotan.	Tang	Cofec	Covers	D.	Sine

LOG SINES, &c

(253)

2 Deg	Sine	Diff	Cofec	Verfeds	Tang	Diff	Cotang	Covers	Secant	D	Cofine	
0	8 5428192	36020	11 4571808	6 7847406	8 5430838	36071	11 4569162	9 9845725	10 0002646	45	9 9997354	60
1	8 5464218	35730	11 4535782	6 7919481	8 5466909	35774	11 4533091	9 9844417	10 0002691	44	9 9997309	59
2	8 5499948	35438	11 4500052	6 7990963	8 5502683	35483	11 4497317	9 9843108	10 0002735	43	9 9997265	58
3	8 5535386	35150	11 4464614	6 8061861	8 5538166	35196	11 4461834	9 9841799	10 0002780	42	9 9997220	57
4	8 5570536	34868	11 4429464	6 8132185	8 5573362	34914	11 4426638	9 9840490	10 0002826	41	9 9997174	56
5	8 5605404	34590	11 4394596	6 8201944	8 5608276	34636	11 4391724	9 9839180	10 0002872	40	9 9997128	55
6	8 5639994	34316	11 4360006	6 8271147	8 5642912	34363	11 4357088	9 9837869	10 0002918	39	9 9997082	54
7	8 5674310	34047	11 4325690	6 8339803	8 5677275	34093	11 4322725	9 9836559	10 0002964	38	9 9997036	53
8	8 5708335	33782	11 4291643	6 8407920	8 5711368	33829	11 4288632	9 9835248	10 0003011	37	9 9996989	52
9	8 5742139	33521	11 4257861	6 8475507	8 5745197	33569	11 4254803	9 9833936	10 0003058	36	9 9996942	51
10	8 5775660	33263	11 4224340	6 8542572	8 5778766	33311	11 4221234	9 9832624	10 0003106	35	9 9996894	50
11	8 5808923	33010	11 4191077	6 8609123	8 5812077	33059	11 4187923	9 9831312	10 0003154	34	9 9996846	49
12	8 5841933	32761	11 4158067	6 8675167	8 5845136	32809	11 4154864	9 9830000	10 0003202	33	9 9996798	48
13	8 5874694	32515	11 4125306	6 8740714	8 5877945	32564	11 4122055	9 9828687	10 0003251	32	9 9996749	47
14	8 5907209	32274	11 4092791	6 8805768	8 5910509	32323	11 4089491	9 9827373	10 0003300	31	9 9996700	46
15	8 5939483	32034	11 4060517	6 8870340	8 5942832	32085	11 4057168	9 9826060	10 0003350	30	9 9996650	45
16	8 5971517	31800	11 4028483	6 8934434	8 5974917	31850	11 4025083	9 9824745	10 0003399	29	9 9996601	44
17	8 6003317	31569	11 3996683	6 8998059	8 6006767	31619	11 3993233	9 9823431	10 0003450	28	9 9996550	43
18	8 6034886	31340	11 3965114	6 9061221	8 6038386	31391	11 3961614	9 9822116	10 0003500	27	9 9996500	42
19	8 6066226	31115	11 3933774	6 9123927	8 6069777	31166	11 3930223	9 9820801	10 0003551	26	9 9996449	41
20	8 6097341	30894	11 3902659	6 9186183	8 6100943	30946	11 3899057	9 9819485	10 0003602	25	9 9996398	40
21	8 6128235	30675	11 3871765	6 9247996	8 6131889	30727	11 3868111	9 9818169	10 0003654	24	9 9996346	39
22	8 6158910	30459	11 3841090	6 9309372	8 6162616	30511	11 3837384	9 9816853	10 0003706	23	9 9996294	38
23	8 6189369	30247	11 3810637	6 9370317	8 6193127	30300	11 3806873	9 9815536	10 0003758	22	9 9996242	37
24	8 6219616	30037	11 3780384	6 9430837	8 6223427	30091	11 3776573	9 9814219	10 0003811	21	9 9996189	36
25	8 6249653	29831	11 3750347	6 9490939	8 6253518	29884	11 3746482	9 9812901	10 0003864	20	9 9996136	35
26	8 6279484	29627	11 3720516	6 9550627	8 6283402	29681	11 3716598	9 9811583	10 0003918	19	9 9996082	34
27	8 6309111	29426	11 3690889	6 9609907	8 6313083	29480	11 3686917	9 9810265	10 0003972	18	9 9996028	33
28	8 6338537	29227	11 3661463	6 9668786	8 6342563	29282	11 3657437	9 9808946	10 0004026	17	9 9995974	32
29	8 6367744	29032	11 3632236	6 9727268	8 6371845	29086	11 3628155	9 9807627	10 0004081	16	9 9995919	31
30	8 6396796	28838	11 3603204	6 9785359	8 6400931	28894	11 3599049	9 9806308	10 0004135	15	9 9995865	30
31	8 6425634	28648	11 3574366	6 9843063	8 6429825	28703	11 3570175	9 9804988	10 0004191	14	9 9995809	29
32	8 6454282	28460	11 3545718	6 9900381	8 6458528	28516	11 3541472	9 9803668	10 0004247	13	9 9995753	28
33	8 6482742	28274	11 3517258	6 9957334	8 6487044	28331	11 3512956	9 9802347	10 0004303	12	9 9995697	27
34	8 6511016	28091	11 3488984	7 0013911	8 6515375	28147	11 3484625	9 9801026	10 0004359	11	9 9995641	26
35	8 6539107	27910	11 3460893	7 0070121	8 6543522	27968	11 3456478	9 9799704	10 0004416	10	9 9995585	25
36	8 6567017	27731	11 3432983	7 0125969	8 6571490	27789	11 3428510	9 9798383	10 0004473	9	9 9995527	24
37	8 6594748	27555	11 3405252	7 0181461	8 6599279	27612	11 3400721	9 9797061	10 0004531	8	9 9995469	23
38	8 6622303	27381	11 3377767	7 0236600	8 6626891	27440	11 3373109	9 9795738	10 0004589	7	9 9995411	22
39	8 6649684	27209	11 3350316	7 0291391	8 6654331	27267	11 3345669	9 9794415	10 0004647	6	9 9995353	21
40	8 6676893	27039	11 3322910	7 0345838	8 6681598	27099	11 3318402	9 9793092	10 0004705	5	9 9995295	20
41	8 6703932	26872	11 3295608	7 0399946	8 6708697	26931	11 3291303	9 9791768	10 0004764	4	9 9995236	19
42	8 6730804	26706	11 3268496	7 0453719	8 6735628	26765	11 3264372	9 9790444	10 0004824	3	9 9995176	18
43	8 6757510	26542	11 3241490	7 0507161	8 6762393	26603	11 3237607	9 9789119	10 0004884	2	9 9995116	17
44	8 6784052	26381	11 3214594	7 0560276	8 6788996	26441	11 3211004	9 9787795	10 0004944	1	9 9995056	16
45	8 6810433	26221	11 3187817	7 0613068	8 6815437	26282	11 3184563	9 9786469	10 0005004	60	9 9994996	15
46	8 6836654	26064	11 3161146	7 0665540	8 6841719	26125	11 3158281	9 9785144	10 0005065	59	9 9994935	14
47	8 6862718	25907	11 3134582	7 0717698	8 6867844	25969	11 3132156	9 9783818	10 0005126	58	9 9994874	13
48	8 6888625	25754	11 3111375	7 0769544	8 6893813	25816	11 3106187	9 9782491	10 0005188	57	9 9994812	12
49	8 6914379	25601	11 3088562	7 0821082	8 6919629	25663	11 3080371	9 9781164	10 0005250	56	9 9994750	11
50	8 6939980	25451	11 3066020	7 0872316	8 6945292	25514	11 3054708	9 9779837	10 0005312	55	9 9994688	10
51	8 6965431	25303	11 3043569	7 0923249	8 6970806	25366	11 3029194	9 9778510	10 0005375	54	9 9994625	9
52	8 6990734	25155	11 3020966	7 0973885	8 6996172	25218	11 3003828	9 9777182	10 0005438	53	9 9994562	8
53	8 7015889	25010	11 2998411	7 1024228	8 7021390	25075	11 2978610	9 9775853	10 0005502	52	9 9994498	7
54	8 7040899	24867	11 2975910	7 1074280	8 7046465	24930	11 2953535	9 9774525	10 0005565	51	9 9994435	6
55	8 7065766	24724	11 2953442	7 1124045	8 7071395	24790	11 2928605	9 9773195	10 0005630	50	9 9994370	5
56	8 7090490	24585	11 2930951	7 1173527	8 7096185	24649	11 2903815	9 9771866	10 0005694	49	9 9994306	4
57	8 7115075	24445	11 2884925	7 1222728	8 7120834	24511	11 2879166	9 9770536	10 0005759	48	9 9994241	3
58	8 7139520	24309	11 2860480	7 1271652	8 7145345	24374	11 2854655	9 9769206	10 0005824	47	9 9994176	2
59	8 7163829	24173	11 2836171	7 1320302	8 7169710	24239	11 2830281	9 9767875	10 0005890	46	9 9994110	1
60	8 7188002	24040	11 2811998	7 1368680	8 7193958	24106	11 2806042	9 9766544	10 0005956	45	9 9994044	0
	Cofine	Diff	Secant	Covers	Cotang	Diff	Tang	Verfeds	Cofec	D	Sine	Deg.

3 Deg			NATURAL SINES, &c.						Tab. 10	
	Sine	Dif	Covers	Cofec	Tang.	Cotang.	Secant	Verf.	D.	Cofine
0	052336	2904	9476640	19 107323	0524078	19 081137	1 0013723	0013705		9986295
1	052626	2905	9473736	19 001854	0526995	18 975523	1 0013877	0013857	152	9986143
2	0529169	2905	9470831	18 897545	0529912	18 871068	1 0014030	0014011	154	9985989
3	0532074	2905	9467926	18 794377	0532829	18 767754	1 0014185	0014165	154	9985835
4	0534979	2905	9465021	18 692330	0535746	18 665362	1 0014341	0014320	155	9985680
5	0537883	2904	9462117	18 591387	0538663	18 564473	1 0014497	0014476	156	9985524
6	0540788	2905	9459212	18 491530	0541581	18 464471	1 0014655	0014633	157	9985367
7	0543693	2905	9456307	18 392742	0544498	18 365537	1 0014813	0014791	158	9985209
8	0546597	2905	9453403	18 295005	0547416	18 267654	1 0014972	0014950	159	9985050
9	0549502	2904	9450498	18 198303	0550333	18 170807	1 0015132	0015109	160	9984891
10	0552406	2905	9447594	18 102619	0553251	18 074977	1 0015293	0015269	161	9984731
11	0555311	2905	9444689	18 007937	0556169	17 980150	1 0015454	0015430	162	9984570
12	0558215	2904	9441785	17 914243	0559087	17 886310	1 0015617	0015592	163	9984408
13	0561119	2905	9438881	17 821520	0562005	17 793442	1 0015780	0015755	164	9984245
14	0564024	2904	9435976	17 729753	0564923	17 701529	1 0015944	0015919	164	9984081
15	0566928	2904	9433072	17 638928	0567841	17 610559	1 0016109	0016083	166	9983917
16	0569832	2904	9430168	17 549030	0570759	17 520516	1 0016275	0016249	166	9983751
17	0572736	2904	9427264	17 460046	0573678	17 431385	1 0016442	0016415	167	9983585
18	0575640	2904	9424360	17 371960	0576596	17 343155	1 0016609	0016582	168	9983418
19	0578544	2904	9421456	17 284761	0579515	17 255809	1 0016778	0016750	168	9983250
20	0581448	2904	9418552	17 198434	0582434	17 169337	1 0016947	0016918	170	9983082
21	0584352	2904	9415648	17 112966	0585352	17 083724	1 0017117	0017088	170	9982912
22	0587256	2904	9412744	17 028346	0588271	16 998957	1 0017288	0017258	172	9982742
23	0590160	2904	9409840	16 944559	0591190	16 915025	1 0017460	0017430	172	9982570
24	0593064	2903	9406936	16 861594	0594109	16 831915	1 0017633	0017602	173	9982398
25	0595967	2904	9404033	16 779439	0597029	16 749614	1 0017806	0017775	173	9982225
26	0598871	2904	9401129	16 698082	0599948	16 668112	1 0017981	0017948	175	9982052
27	0601775	2903	9398225	16 617512	0602867	16 587396	1 0018156	0018123	176	9981877
28	0604678	2903	9395322	16 537717	0605787	16 507456	1 0018332	0018299	176	9981701
29	0607582	2903	9392418	16 458686	0608706	16 428279	1 0018509	0018475	177	9981525
30	0610485	2904	9389515	16 380408	0611626	16 349855	1 0018687	0018652	178	9981348
31	0613389	2903	9386611	16 302873	0614546	16 272174	1 0018866	0018830	179	9981170
32	0616292	2904	9383708	16 226069	0617466	16 195225	1 0019045	0019009	180	9980991
33	0619196	2903	9380804	16 149987	0620386	16 118998	1 0019225	0019189	180	9980811
34	0622099	2903	9377901	16 074617	0623306	16 043482	1 0019407	0019369	181	9980631
35	0625002	2903	9374998	15 999948	0626226	15 968667	1 0019589	0019550	183	9980450
36	0627905	2903	9372095	15 925971	0629147	15 894545	1 0019772	0019733	183	9980267
37	0630808	2903	9369192	15 852676	0632067	15 821105	1 0019956	0019916	184	9980084
38	0633711	2903	9366289	15 780054	0634988	15 748337	1 0020140	0020100	184	9979900
39	0636614	2903	9363386	15 708096	0637908	15 676233	1 0020326	0020284	186	9979716
40	0639517	2903	9360483	15 636793	0640829	15 604784	1 0020512	0020470	187	9979530
41	0642420	2903	9357580	15 566135	0643750	15 533981	1 0020699	0020657	187	9979343
42	0645323	2903	9354677	15 496114	0646671	15 463814	1 0020887	0020844	188	9979156
43	0648226	2903	9351774	15 426721	0649592	15 394276	1 0021076	0021032	189	9978968
44	0651129	2903	9348871	15 357949	0652513	15 325358	1 0021266	0021221	190	9978779
45	0654031	2903	9345969	15 289788	0655435	15 257052	1 0021457	0021411	190	9978589
46	0656934	2902	9343066	15 222231	0658356	15 189349	1 0021648	0021601	192	9978399
47	0659836	2903	9340164	15 155270	0661278	15 122242	1 0021841	0021793	192	9978207
48	0662739	2902	9337261	15 088896	0664199	15 055723	1 0022034	0021985	194	9978015
49	0665641	2903	9334359	15 023103	0667121	14 989784	1 0022228	0022179	194	9977821
50	0668544	2902	9331456	14 957882	0670043	14 924417	1 0022423	0022373	194	9977627
51	0671446	2903	9328551	14 893226	0672965	14 859616	1 0022619	0022567	196	9977433
52	0674349	2902	9325651	14 829128	0675887	14 795372	1 0022815	0022763	197	9977237
53	0677251	2902	9322749	14 765580	0678809	14 731679	1 0023013	0022960	197	9977040
54	0680153	2902	9319847	14 702576	0681732	14 668529	1 0023211	0023157	198	9976843
55	0683055	2902	9316944	14 640109	0684654	14 605916	1 0023410	0023355	200	9976645
56	0685957	2902	9314043	14 578172	0687577	14 543833	1 0023610	0023555	200	9976445
57	0688859	2902	9311141	14 516757	0690499	14 482273	1 0023811	0023755	200	9976245
58	0691761	2902	930823	14 455859	0693422	14 421230	1 0024013	0023955	202	9976045
59	0694663	2902	930533	14 395471	0696345	14 360696	1 0024216	0024157	202	9975843
60	0697565	2902	930243	14 335582	0699268	14 300666	1 0024419	0024359	202	9975641
Cofine	Dif	Verf	Secant	Cotang	Tang	Cofec	Covers	D	Sine	

3 Deg		Log Sines, &c										(255)	
	Sine	Diff	Cofec	Verfed	Tang	Diff	Cotang	Covers	Secant	D	Cofine		
0	87188002		112811998	71368680	87193958		112806042	99766544	100005950	67	9994044	60	
1	87212040	24038	112787960	71416791	87218063	24105	112781937	99765213	100006022	67	9993978	59	
2	87235946	23906	112764054	71464636	87242035	23972	112757965	99763881	100006089	67	9993911	58	
3	87259721	23775	112740279	71512219	87265877	23842	112734123	99762549	100006156	67	9993844	57	
4	87283366	23645	112716634	71559542	87289589	23712	112710411	99761216	100006224	68	9993776	56	
5	87306882	23516	112693118	71606609	87313174	23585	112686826	99759883	100006292	68	9993708	55	
6	87330272	23390	112669728	71653422	87336631	23457	112663369	99758550	100006360	68	9993640	54	
7	87353535	23263	112646465	71699984	87359964	3333	112640036	9975716	100006428	69	9993572	53	
8	87376675	23140	112623225	71746297	87383172	23208	112616828	99755882	100006497	69	9993503	52	
9	87399691	23016	112600309	71792365	87406258	23086	112593742	99754547	100006567	69	9993433	51	
10	87422586	22895	112577414	71838189	87429222	22964	112570778	99753212	100006636	69	9993364	50	
11	87445360	22774	112554640	71883773	87452067	22845	112547933	99751877	100006707	70	9993293	49	
12	87468015	22655	112531985	71929118	87474792	22725	112525208	99750541	100006777	70	9993223	48	
13	87490553	22538	112509447	71974228	87497400	22608	112502600	99749205	100006848	71	9993152	47	
14	87512973	22420	112487027	72019104	87519892	492	112480108	99747868	100006919	71	9993081	46	
15	87535278	22305	112464722	72063750	8754269	22377	112457731	99746532	100006991	72	9993009	45	
16	87557469	22191	112442531	72108167	87564531	22262	112435469	99745191	100007062	72	9992938	44	
17	87579546	22077	112420454	72152358	87586681	22150	112413319	99743857	100007135	73	9992865	43	
18	87601512	21966	112398488	72196326	87608719	22038	112391281	99742519	100007207	73	9992793	42	
19	87623366	21854	112376634	72240071	87630647	21928	112369353	99741180	100007280	73	9992720	41	
20	87645111	21745	112354889	72283597	87652465	21818	112347535	99739841	100007354	74	9992646	40	
21	87666747	21636	112333253	72326906	87674175	21710	112325825	99738502	100007428	74	9992572	39	
22	87688275	21528	112311725	72370000	87695777	21602	112304223	99737162	100007502	74	9992498	38	
23	87709697	21422	112290303	72412881	87717274	21497	112282726	99735822	100007576	74	9992424	37	
24	87731014	21317	112268986	72455551	87738665	1391	112261335	99734482	100007651	75	9992349	36	
25	87752226	21212	112247774	72498013	87759952	21287	112240048	99733141	100007726	75	9992274	35	
26	87773334	21108	112226666	72540267	87781136	21184	112218864	99731800	100007802	76	9992198	34	
27	87794310	21006	112205660	72582317	87802218	2108	112197782	99730458	100007878	76	9992122	33	
28	87815244	20904	112184756	72624164	87823199	40981	112176801	99729117	100007954	76	9992046	32	
29	87836048	20804	112163952	72665810	87844079	20880	112155921	99727774	100008031	77	9991969	31	
30	87856753	20705	112143247	72707258	87864861	20782	112135139	99726431	100008108	77	9991892	30	
31	87877359	20606	112122641	72748508	87885544	20683	112114456	99725088	100008185	78	9991815	29	
32	87897867	20508	112102133	72789563	87906130	20586	112093870	99723745	100008263	78	9991737	28	
33	87918278	20411	112081722	72830458	87926620	20490	112073380	99722401	100008341	79	9991659	27	
34	87938594	20316	112061406	72871095	87947014	20394	112052986	99721057	100008419	79	9991580	26	
35	87958814	20220	112041186	72911576	87967313	20299	112032687	99719712	100008499	80	9991501	25	
36	87978941	20127	112021059	72951869	87987519	20206	112012481	99718367	100008578	80	9991422	24	
37	87998974	20033	112001026	72991975	88007632	20113	111992368	99717021	100008658	81	9991342	23	
38	88018915	19941	111981085	73031897	88027653	20021	111972347	99715675	100008738	81	9991262	22	
39	88038764	19849	111961236	73071636	88047583	19930	111952417	99714329	100008818	82	9991182	21	
40	88058523	19759	111941477	73111194	8806742	19839	111932578	99712982	100008899	82	9991101	20	
41	88078192	19669	111921808	73150572	88087172	19750	111912828	99711635	100008980	83	9991020	19	
42	88097772	19580	111902228	73189773	88106834	19662	111893166	99710288	100009061	83	9990938	18	
43	88117264	19492	111882736	73228797	88126407	19573	111873593	99708940	100009141	84	9990856	17	
44	88136668	19404	111863332	73267616	88145894	19487	111854106	9970759	100009222	84	9990774	16	
45	88155985	19317	111844015	73306322	88165294	19400	111834706	9970625	100009303	85	9990691	15	
46	88175217	19232	111824783	73344827	88184608	19314	111815392	9970491	100009384	85	9990608	14	
47	88194363	19146	111805637	73383161	88203838	19230	111796162	99703515	100009467	86	9990525	13	
48	88213425	19062	111786575	73421327	88222981	19146	111777016	99702119	100009551	86	9990441	12	
49	88232404	18979	111767596	73459326	88242046	19062	111757951	99700845	100009633	87	9990357	11	
50	88251299	18895	111748701	73497159	88261026	18980	11173894	99699494	100009717	87	9990273	10	
51	88270112	18813	111729888	73534828	88279924	18898	111720076	99698143	100009802	88	9990188	9	
52	88288844	18732	111711156	73572334	88298741	18817	111701259	99696792	100009887	88	9990103	8	
53	88307495	18651	111692505	73609678	88317478	18737	111682522	99695440	100009983	89	9990017	7	
54	88326066	18571	111673934	73646863	88336134	18656	111663866	99694088	100010069	89	9989931	6	
55	88344557	18491	111655443	73683888	88354712	18578	11164528	99692735	100010155	90	9989845	5	
56	88363069	18412	111637031	73720757	88373211	18499	111626789	99691382	100010242	90	9989758	4	
57	88381304	18335	111618696	73757469	88391633	18422	111608361	99690029	100010329	91	9989671	3	
58	88399561	18257	111600439	73794027	88410977	18344	111590023	99688675	100010416	91	9989584	2	
59	88417741	18180	111582259	73830431	88430245	18268	111571755	99687321	100010504	92	9989496	1	
60	88435845	18104	111564155	73866683	88449437	18192	11155356	99685967	100010592	92	9989408	0	
	Cofine	Diff	Secant	Covers	Cotang	Diff	Tang	Verfed	Cofec	D	Sine		

4 Deg.	NATURAL SINES, &c.								Tab. 10	
	Sine	Dif	Covers	Cofec	Tang.	Cotang.	Secant	Verf	D	Coline
0	069755	2902	9302435	14335587	0699260	14300666	10024419	0024359	204	9975641
1	070046	2901	9299533	14276200	0702171	14241134	10024623	0024563	204	9975437
2	0703368	2902	9296632	14217304	0705115	14182092	10024829	0024767	204	9975233
3	0706270	2901	9293730	14158894	0708038	14123536	10025035	0024972	205	9975028
4	0709171	2902	9290829	14100963	0710961	14065459	10025241	0025178	206	9974822
5	0712073	2901	9287927	14043504	0713885	14007856	10025449	0025385	207	9974615
6	0714971	2902	9285026	13986514	0716809	13950719	10025658	0025592	207	9974408
7	0717876	2901	9282124	13929985	0719733	13894045	10025867	0025801	209	9974199
8	0720777	2901	9279223	13873913	0722657	13837827	10026078	0026010	209	9973990
9	0723678	2901	9276322	13818491	0725581	13782060	10026289	0026220	210	9973780
10	0726580	2902	9273420	13763115	0728505	13726738	10026501	0026431	211	9973569
11	0729481	2901	9270519	13708379	0731430	13671856	10026714	0026643	212	9973357
12	0732382	2901	9267618	13654077	0734354	13617407	10026928	0026855	212	9973145
13	0735283	2901	9264717	13600205	0737279	13563391	10027142	0027069	214	9972931
14	0738184	2901	9261816	13546758	0740203	13509799	10027358	0027283	214	9972717
15	0741085	2901	9258915	13493731	0743128	13456625	10027574	0027498	215	9972502
16	0743986	2901	9256014	13441118	0746053	13403867	10027791	0027714	216	9972286
17	0746887	2900	9253113	13388914	0748979	13351518	10028009	0027931	217	9972069
18	0749787	2901	9250213	13337116	0751904	13299574	10028228	0028149	218	9971851
19	0752688	2901	9247312	13285719	0754829	13248031	10028448	0028367	218	9971633
20	0755589	2900	9244411	13234717	0757755	13196883	10028669	0028587	220	9971413
21	0758489	2901	9241511	13184106	0760680	13146127	10028890	0028807	220	9971193
22	0761390	2901	9238610	13133882	0763606	13095757	10029112	0029028	221	9970972
23	0764290	2900	9235710	13084040	0766532	13045769	10029336	0029250	222	9970750
24	0767190	2901	9232810	13034576	0769458	12996160	10029560	0029472	222	9970528
25	0770091	2900	9229909	12985486	0772384	12946924	10029785	0029696	224	9970304
26	0772991	2900	9227009	12936765	0775311	12898058	10030010	0029920	224	9970080
27	0775891	2900	9224109	12888416	0778237	12849557	10030237	0030146	226	9969854
28	0778791	2900	9221209	12840416	0781164	12801417	10030464	0030372	226	9969628
29	0781691	2900	9218309	12792779	0784090	12753634	10030693	0030599	227	9969401
30	0784591	2900	9215409	12745495	0787017	12706205	10030922	0030827	228	9969173
31	0787491	2900	9212509	12698560	0789944	12659125	10031152	0031055	228	9968945
32	0790391	2899	9209609	12651971	0792871	12612390	10031383	0031285	230	9968715
33	0793290	2900	9206710	12605724	0795798	12565997	10031615	0031515	230	9968485
34	0796190	2900	9203810	12559815	0798726	12519942	10031847	0031746	231	9968254
35	0799090	2899	9200910	12514240	0801653	12474221	10032081	0031978	232	9968022
36	0801989	2900	9198011	12468915	0804581	12428831	10032315	0032211	233	9967789
37	0804889	2899	9195111	12424078	0807509	12383768	10032551	0032445	234	9967555
38	0807788	2899	9192212	12379484	0810437	12339028	10032787	0032679	234	9967321
39	0810687	2900	9189313	12335210	0813365	12294609	10033024	0032915	236	9967085
40	0813587	2899	9186413	12291252	0816293	12250505	10033261	0033151	236	9966849
41	0816486	2899	9183514	12247608	0819221	12206716	10033500	0033388	237	9966612
42	0819385	2899	9180615	12204274	0822150	12163236	10033740	0033626	238	9966374
43	0822284	2899	9177716	12161246	0825078	12120062	10033980	0033865	239	9966135
44	0825183	2899	9174817	12118522	0828007	12077192	10034221	0034105	240	9965895
45	0828082	2899	9171918	12076098	0830936	12034622	10034463	0034345	240	9965655
46	0830981	2899	9169019	12033970	0833865	11992349	10034706	0034586	241	9965414
47	0833880	2899	9166120	11992137	0836794	11950370	10034950	0034828	42	9965172
48	0836778	2899	9163222	11950595	0839723	11908682	10035195	0035071	243	9964929
49	0839677	2899	9160323	11909340	0842653	11867282	10035440	0035315	244	9964685
50	0842576	2898	9157424	11868370	0845583	11826167	10035687	0035560	245	9964440
51	0845474	2899	9154526	11827683	0848512	11785333	10035934	0035805	245	9964195
52	0848373	2898	9151627	11787274	0851441	11744779	10036182	0036052	247	9963948
53	0851271	2898	9148729	11747141	0854372	11704500	10036431	0036299	247	9963701
54	0854169	2898	9145831	11707282	0857302	11664495	10036681	0036547	248	9963453
55	0857067	2899	9142933	11667693	0860233	11624761	10036932	0036796	249	9963204
56	0859966	2898	9140034	11628372	0863163	11585204	10037183	0037046	250	9962954
57	0862864	2898	9137136	11589316	0866094	11546093	10037436	0037296	250	9962704
58	0865762	2898	9134238	11550523	0869025	11507154	10037689	0037548	252	9962452
59	0868660	2897	9131340	11511990	0871956	11468474	10037943	0037800	252	9962200
60	0871557		9128443	11473713	0874887	11430052	10038198	0038053	253	9961947
	Coline	Dif.	Verf.	Secant	Cotan.	Tang.	Cofec.	Covers	D.	Sine

1 Deg		Log Sines, &c										(257)	
	Sine	Diff	Cotang	Veriedf	Tang	Diff	Cotang	Coverf	Secant	D	Cofine		
0	88435815	180-9	111564155	73866683	88446437	18117	111553563	99605967	10001059	89	99894006	10	
1	88453874	17953	111546126	73902785	88464554	18013	111555446	99684612	100010681	88	99893195	59	
2	88471821	17880	111538173	73938736	88482577	17909	111517403	99683256	100010770	87	99892305	58	
3	88489701	17805	111530293	73974539	88500566	17805	111499434	99681901	100010859	86	99891415	57	
4	88507512	17733	11149488	74010196	88518461	17722	111481539	99680544	100010948	85	99890525	56	
5	88525245	17660	111474755	74045706	88536283	17751	111463717	99679188	100011038	84	99889635	55	
6	88542905	17588	111457095	74081071	88554034	17679	111445966	99677831	100011129	83	99888745	54	
7	88560493	17517	111439507	74116295	88571713	17608	1114283	99676474	100011210	82	99887855	53	
8	88578016	17441	111421990	74151372	88589321	17538	111410679	99675116	100011291	81	99886965	52	
9	88595457	17376	111401543	74186311	88606859	17468	111393141	99673758	100011372	80	99886075	51	
10	88612833	17306	111387167	74221109	8862437	17398	111375673	99672399	100011453	79	99885185	50	
11	88630139	17237	111369861	74255767	88641725	17330	111358275	99671041	100011534	78	99884295	49	
12	88647376	17160	111352624	74290288	88659055	17262	111340945	99669681	100011615	77	99883405	48	
13	88664515	17101	111335455	74324673	88676317	17194	111323683	99668322	100011696	76	99882515	47	
14	88681646	17034	111318354	7435891	88693511	17122	111306489	99666961	100011777	75	99881625	46	
15	88698680	16966	111301307	74393035	88710638	17061	111289362	99665601	100011858	74	99880735	45	
16	88715646	16900	111284354	74427015	88727699	16995	11127201	99664240	100011939	73	99879845	44	
17	88732546	16835	111267454	74460862	88744694	16929	111255306	99662879	100012020	72	99878955	43	
18	88749381	16769	111250619	74494578	8876163	16864	111238377	99661517	100012101	71	99878065	42	
19	88766150	16704	111233850	74528163	88778487	16799	111221513	99660155	100012182	70	99877175	41	
20	88782854	16639	111217146	74561619	88795286	16736	111204714	99658793	100012263	69	99876285	40	
21	88799493	16576	111200507	74594946	8881202	16672	111187978	99657430	100012344	68	99875395	39	
22	88816069	16512	111183931	74628146	88828694	16609	111171306	99656067	100012425	67	99874505	38	
23	88832581	16450	111167419	74661219	88845303	16547	111154697	99654703	100012506	66	99873615	37	
24	88849031	16381	111150969	74694166	88861850	16484	111138150	99653339	100012587	65	99872725	36	
25	88865418	16315	111134582	74726989	88878334	16423	111121666	99651974	100012668	64	99871835	35	
26	88881743	16264	11111857	74759688	88894757	16362	11110543	99650610	100012749	63	99870945	34	
27	88898007	16200	111101993	74792261	88911119	16301	111088881	99649244	100012830	62	99870055	33	
28	88914209	16141	111085791	74824719	8892740	16240	111072580	99647879	100012911	61	99869165	32	
29	88930351	1608	111069649	7485705	88943660	1618	11105634	99646513	100013000	60	99868275	31	
30	88946433	1602	111053567	74889265	88959842	16121	111040158	99645146	100013081	59	99867385	30	
31	88962455	15963	111037545	74921359	88975963	16063	11102403	99643779	100013162	58	99866495	29	
32	88978418	15904	111021582	74953335	8899206	16004	111007974	99642412	100013243	57	99865605	28	
33	88994322	15846	111005678	74985193	89008030	15947	110991970	99641044	100013324	56	99864715	27	
34	89010168	15787	110989832	75016934	89023977	15889	110976023	99639676	100013405	55	99863825	26	
35	89025955	15730	110974045	7504856	89039866	15831	110960134	99638308	100013486	54	99862935	25	
36	89041685	15673	110958315	75080071	89055697	15775	110944303	99636939	100013567	53	99862045	24	
37	89057353	15617	110942642	75111468	89071472	15718	110928528	99635570	100013648	52	99861155	23	
38	89072975	15560	110927025	75142751	89087190	15663	110912810	99634200	100013729	51	99860265	22	
39	89088535	15504	110911465	75173923	89102853	15607	110897147	99632830	100013810	50	99859375	21	
40	89104039	15448	110895961	75204982	89118460	15552	110881540	99631460	100013891	49	99858485	20	
41	89119487	15391	110880513	75235931	8913401	15497	11086598	99630087	100013972	48	99857595	19	
42	89134881	15338	110865119	75266769	89149509	15443	110850497	99628718	100014053	47	99856705	18	
43	89150219	15285	110849781	75297498	89164952	15388	110835048	99627346	100014134	46	99855815	17	
44	89165504	15230	110834497	75328119	89180340	15335	110819660	99625974	100014215	45	99854925	16	
45	89180734	15177	110819266	75358632	89195675	1528	11080433	99624602	100014296	44	99854035	15	
46	89195911	15123	110804089	75389038	89210957	15229	110789043	99623229	100014377	43	99853145	14	
47	89211034	15071	110788966	75419338	89226186	15177	110773814	99621856	100014458	42	99852255	13	
48	89226105	15018	110773895	75449532	89241363	15124	11075863	99620482	100014539	41	99851365	12	
49	89241123	14966	110758877	75479621	89256487	15073	110743513	99619108	100014620	40	99850475	11	
50	89256089	14914	110743911	75509607	89271560	15021	110728440	99617733	100014701	39	99849585	10	
51	89271003	14863	110728997	75539489	89286581	14971	110713419	99616359	100014782	38	99848695	9	
52	89285866	14811	110714134	75569268	89301552	14919	110698448	99614983	100014863	37	99847805	8	
53	89300678	14761	110699322	75598946	89316471	14869	11068359	99613608	100014944	36	99846915	7	
54	89315430	14711	110684561	75628522	89331340	14820	110668660	9961223	100015025	35	99846025	6	
55	89330150	14661	110669850	75657998	89346160	14769	110653840	99610855	100015106	34	99845135	5	
56	89344811	14611	110655189	75687373	8936099	14721	110639071	99609478	100015187	33	99844245	4	
57	89359422	14561	110640578	75716650	89375850	14671	110624350	99608101	100015268	32	99843355	3	
58	89373983	14513	110626017	75745828	89390321	14623	110609679	99606723	100015349	31	99842465	2	
59	89388496	14464	110611504	75774908	89404944	14574	110595056	99605345	100015430	30	99841575	1	
60	89402960	14414	110597040	75803891	89419518		11058048	99603967	100015511	29	99840685	0	
Cofine	Diff	Secant	Cotang	Veriedf	Cotang	Diff	Tang	Veriedf	Cotang	D	Sine		

5 Deg		NATURAL SINES, &c.								Tab. 10	
	Sine	Dif	Coverf	Colec	Tang	Cotang.	Secant	Verf.	D	Cofine	
0	871557	2898	9128443	11 473713	874887	11 430052	1 0038198	0038053		9961947	10
1	874455	2898	9125545	11 435692	877818	11 391885	1 0038454	0038307	254	9961693	9
2	877353	2898	9122647	11 397922	880749	11 353970	1 0038711	0038562	255	9961438	8
3	880251	2897	9119749	11 360402	883681	11 316304	1 0038969	0038817	255	9961183	7
4	883148	2898	9116852	11 323129	886612	11 278885	1 0039227	0039074	257	9960926	6
5	886046	2897	9113954	11 286101	889544	11 241712	1 0039486	0039331	257	9960669	5
6	888943	2897	9111057	11 249316	892476	11 204780	1 0039747	0039589	25	9960411	4
7	891840	2898	9108160	11 212770	895408	11 168089	1 004000	003948	259	9960152	3
8	894738	2897	9105262	11 176462	898341	11 131635	1 0040270	0040103	260	9959892	2
9	897635	2897	9102365	11 140389	901273	11 095416	1 0040533	0040369	261	9959631	1
10	900532	2897	9099468	11 104549	904206	11 059431	1 0040796	0040630	261	9959370	0
11	903429	2897	9096571	10 068940	907138	11 023676	1 0041061	0040893	263	9959107	49
12	906326	2897	9093674	10 033560	910071	10 988150	1 0041326	0041156	263	9958844	18
13	909223	2896	9090777	10 998406	913004	10 952850	1 0041592	004140	264	9958580	47
14	912119	2897	9087881	10 963476	915938	10 917775	1 0041859	0041685	265	9958315	46
15	915016	2897	9084984	10 928768	918871	10 882921	1 0042127	0041951	266	9958049	45
16	917913	2896	9082087	10 894281	921804	10 84888	1 0042396	0042217	266	9957783	14
17	920809	2897	9079191	10 860011	924738	10 813872	1 0042666	0042485	268	9957515	13
18	923706	2896	9076294	10 825957	927672	10 779673	1 0042937	0042753	268	9957247	12
19	926602	2897	9073398	10 792117	930606	10 745687	1 0043208	0043022	269	9956978	11
20	929499	2896	9070501	10 758488	933540	10 711913	1 0043480	0043292	270	9956708	10
21	932395	2896	9067605	10 725070	936474	10 678348	1 0043753	0043562	271	9956437	9
22	935291	2896	9064709	10 691859	939409	10 644992	1 0044028	0043835	272	9956165	8
23	938187	2896	9061813	10 658854	942344	10 611841	1 0044302	0044107	272	9955893	7
24	941083	2896	9058917	10 626054	945278	10 578895	1 0044570	0044380	273	9955620	6
25	943979	2896	9056021	10 593455	948213	10 546151	1 0044855	0044655	275	9955353	5
26	946875	2896	9053125	10 561057	951148	10 513607	1 0045132	0044930	275	9955070	4
27	949771	2895	9050229	10 528857	954084	10 481261	1 0045411	0045205	275	9954795	3
28	952666	2896	9047334	10 496854	957019	10 449112	1 0045690	0045482	277	9954518	2
29	955562	2896	9044438	10 465046	959955	10 417158	1 0045970	0045760	278	9954240	1
30	958458	895	9041542	10 433431	962890	10 385397	1 0046251	0046038	278	9953962	0
31	961353	2895	9038647	10 402007	965826	10 353827	1 0046533	0046317	279	9953683	49
32	964248	2896	9035752	10 370772	968763	10 322447	1 0046815	0046597	280	9953403	48
33	967144	2895	9032856	10 339726	971699	10 291255	1 0047099	0046878	281	9953122	47
34	970039	2895	9029961	10 308866	974635	10 260219	1 0047383	0047160	281	9952840	46
35	972934	2895	9027066	10 278190	977572	10 229428	1 0047669	0047443	283	9952557	45
36	975829	2895	9024171	10 247697	980509	10 198789	1 0047955	0047726	283	9952274	44
37	978724	2895	9021276	10 217386	983446	10 168332	1 0048242	0048010	284	9951990	43
38	981619	2895	9018381	10 18754	986383	10 138054	1 0048530	0048295	285	9951705	42
39	984514	2894	9015486	10 157300	989320	10 107954	1 0048819	0048581	286	9951419	41
40	987408	2895	9012592	10 127522	992257	10 078031	1 0049108	0048868	287	9951132	40
41	990303	2894	9009697	10 097920	995194	10 048283	1 0049399	0049156	288	9950844	39
42	993197	2895	9006803	10 068491	998133	10 018706	1 0049690	0049441	288	9950556	38
43	996092	2894	9003908	10 039234	1001071	9 9893050	1 0049982	0049734	290	9950260	37
44	998986	2895	9001014	10 010147	1004009	9 9600724	1 0050275	0050024	290	9949976	36
45	1001881	2894	8998119	9 9812291	1006947	9 9310088	1 0050569	0050315	291	9949685	35
46	1004775	2894	8995225	9 9524787	1009886	9 9021125	1 0050864	0050607	292	9949393	34
47	1007669	2894	8992331	9 9238943	1012824	9 8733823	1 0051160	0050899	292	9949101	33
48	1010563	894	8989437	9 8954744	1015763	9 8448166	1 0051456	0051193	294	9948807	32
49	1013457	2894	8986543	9 8672176	1018702	9 8164140	1 0051754	0051487	294	9948513	31
50	1016351	2894	8983649	9 8391227	1021641	9 7881732	1 0052052	0051783	296	9948217	30
51	1019245	2893	8980755	9 8111880	1024580	9 7600927	1 0052351	0052079	296	9947921	29
52	1022138	2894	8977862	9 7834124	1027520	9 7321713	1 0052651	0052375	296	9947625	28
53	1025032	2893	8974968	9 7557944	1030460	9 7044075	1 0052952	0052673	298	9947327	27
54	1027925	2894	8972075	9 7283327	1033399	9 6768000	1 0053254	0052972	299	9947028	26
55	1030819	2893	8969181	9 7010260	1036340	9 6493475	1 0053557	0053271	299	9946729	25
56	1033712	2893	8966288	9 6738730	1039280	9 6220486	1 0053860	0053572	301	9946428	24
57	1036605	2894	8963395	9 6468724	1042220	9 5949022	1 0054164	0053873	301	9946127	23
58	1039499	2893	8960501	9 6200229	1045161	9 5679068	1 0054470	0054175	302	9945825	22
59	1042392	2893	8957608	9 5933233	1048101	9 5410613	1 0054776	0054477	302	9945523	21
60	1045285	2893	8954715	9 5667722	1051042	9 5143645	1 0055083	0054781	304	9945219	20
	Cofine	Dif	Verf	Secant	Cotan.	Tang.	Colec	Coverf	D.	Sine	

Deg. 1

Sine	Diff	Cofec	Veried	Tang	Diff	Cotang	Coverf	Secant	D	Cofine
0 8940296	14416	11 059 040	7 5803891	8 9419518	14526	11 0580482	9 9603967	10 0016558	110	9 9983442
1 8941736	14367	11 0582624	7 5832778	8 9434044	14479	11 0565956	9 9602588	10 0016668	112	9 9983332
2 89431743	14310	11 0568257	7 5861568	8 9448523	14431	11 0551477	9 9601209	10 0016780	111	9 9983205
3 89446063	14272	11 0553937	7 589063	8 9462954	14384	11 0537046	9 9599829	10 0016891	112	9 9983109
4 89460335	14226	11 0539665	7 5918864	8 9477338	14338	11 0522662	9 959849	10 0017003	112	9 998299
5 89474561	14178	11 0535439	7 5947370	8 9491676	14291	11 0508324	9 9597069	10 0017115	113	9 9982885
6 89488739	14132	11 0531261	7 5975783	8 9505967	14244	11 0494033	9 9595688	10 0017228	112	9 9982772
7 89502971	14086	11 0497129	7 6004103	8 952011	14199	11 0479789	9 9594306	10 0017340	114	9 9982660
8 8951695	14039	11 0483043	7 603331	8 9534410	14154	11 0465590	9 9592925	10 0017454	113	9 9982546
9 89530996	13991	11 0469001	7 6060468	8 9548564	14108	11 0451436	9 9591543	10 001756	115	9 9982433
10 89544991	13944	11 0455009	7 6088513	8 956267	14063	11 043738	9 9590160	10 001768	114	9 9982318
11 89558915	13897	11 0441060	7 6116468	8 9576735	14019	11 0423265	9 9588777	10 0017796	115	9 9982204
12 89572843	13850	11 0427157	7 6144333	8 9590754	13974	11 040946	9 9587394	10 0017911	115	9 9982089
13 89586703	13804	11 0413297	7 6172109	8 9604728	13931	11 0395272	9 9586010	10 0018026	115	9 9981974
14 89600517	13757	11 0399483	7 6199796	8 9618659	13886	11 0381311	9 9584626	10 0018141	116	9 9981859
15 89614288	13710	11 0385712	7 6227395	8 9632515	13843	11 0367455	9 9583242	10 0018257	117	9 9981744
16 89628014	13663	11 0371986	7 6254906	8 9646388	13800	11 0353612	9 9581857	10 0018374	116	9 9981629
17 89641691	13616	11 0358303	7 6282330	8 9660188	13756	11 0339812	9 9580471	10 0018490	117	9 9981514
18 89655337	13570	11 0344663	7 6309668	8 9673914	13714	11 0326056	9 9579086	10 001860	118	9 9981399
19 89668931	13523	11 0331066	7 63369	8 9687658	1367	11 0312342	9 9577699	10 0018725	117	9 9981285
20 89682487	13477	11 0317513	7 6364086	8 9701330	13629	11 0298670	9 9576313	10 001884	118	9 9981170
21 89695919	13430	11 030400	7 6391167	8 9714959	13588	11 0285041	9 957496	10 0018960	119	9 9981055
22 89709468	13384	11 029053	7 6418164	8 9728547	13545	11 0271453	9 9573539	10 0019079	119	9 9980940
23 89722895	13338	11 0277105	7 6445078	8 9742092	13505	11 0257908	9 9572151	10 0019198	119	9 9980825
24 89736280	13292	11 0263720	7 6471908	8 9755597	13463	11 0244403	9 9570763	10 0019317	120	9 9980710
25 89749624	13246	11 0250376	7 6498655	8 9769060	13423	11 0230940	9 9569374	10 0019437	120	9 9980595
26 89762926	13200	11 0237074	7 6525320	8 9782483	13382	11 0217517	9 9567985	10 0019557	121	9 9980480
27 89776158	13154	11 0223812	7 6551903	8 9795865	13341	11 0204135	9 9566596	10 0019677	121	9 9980365
28 8978948	13108	11 0210592	7 6578404	8 9809206	13301	11 0190791	9 9565206	10 0019798	121	9 9980250
29 89802839	13062	11 0197411	7 6604825	8 9822507	13262	11 0177493	9 9563816	10 0019919	121	9 9980135
30 89816157	13016	11 0184271	7 6631161	8 9835769	13222	11 0164231	9 9562425	10 0020040	122	9 9979920
31 89829489	12970	11 0171171	7 6657427	8 9848991	13182	11 0151009	9 9561034	10 0020162	122	9 9979805
32 89842819	12924	11 0158111	7 6683608	8 9862173	13144	11 0137827	9 9559643	10 0020284	123	9 9979690
33 89856110	12878	11 0145090	7 6709711	8 9875317	13104	11 0124683	9 9558251	10 0020407	123	9 9979575
34 89869391	12832	11 0132109	7 6735735	8 9888421	13066	11 0111579	9 9556859	10 0020530	123	9 9979460
35 89882651	12786	11 0119166	7 6761682	8 990148	13027	11 0098513	9 9555466	10 0020653	124	9 9979345
36 89895937	12740	11 0106263	7 6787550	8 9914514	12989	11 0085486	9 9554073	10 0020777	124	9 9979230
37 89909202	12694	11 0093398	7 6813342	8 9927503	12951	11 0072497	9 9552680	10 0020901	124	9 9979115
38 89922499	12648	11 0080571	7 6839058	8 9940454	12913	11 0059546	9 9551286	10 0021025	125	9 9979000
39 89935721	12602	11 0067783	7 6864697	8 9953361	12876	11 0046633	9 9549892	10 0021150	125	9 9978885
40 89948968	12556	11 0055032	7 6890260	8 9966243	12838	11 003375	9 9548497	10 0021275	126	9 9978770
41 89962161	12510	11 0042319	7 6915749	8 9979081	12802	11 0020919	9 954710	10 0021401	126	9 9978655
42 89975356	12464	11 0029614	7 6941162	8 9991883	12764	11 0008117	9 9545706	10 0021527	126	9 9978540
43 89988591	12418	11 0017006	7 6966502	9 0004617	12728	11 0095355	9 9544311	10 0021653	127	9 9978425
44 89991825	12372	11 0004405	7 6991767	9 0017375	12691	11 0082625	9 9542914	10 0021780	127	9 9978310
45 90005060	12326	11 0091810	7 7016959	9 0030066	12655	11 0069934	9 9541518	10 0021907	127	9 9978195
46 90018298	12280	11 0079213	7 7042078	9 0042721	12619	11 0057279	9 9540120	10 0022034	128	9 9978080
47 90031517	12234	11 0066621	7 706714	9 0055340	12584	11 0044660	9 9538723	10 0022162	128	9 9977965
48 90044731	12188	11 0054036	7 7092094	9 006791	12547	11 0032076	9 9537325	10 0022290	128	9 9977850
49 90057953	12142	11 0041447	7 7117001	9 0080471	12513	11 0019529	9 9535921	10 0022418	129	9 9977735
50 90071136	12096	11 0028854	7 7141832	9 0092984	12477	11 0007016	9 9534528	10 0022547	130	9 9977620
51 90084374	12050	11 0016261	7 7166592	9 0105461	12442	11 0094539	9 9533129	10 0022676	129	9 9977505
52 90097596	12004	11 0003668	7 7191281	9 0117903	12407	11 0082097	9 9531729	10 0022806	130	9 9977390
53 90110737	11958	11 0091076	7 7215900	9 0130310	12372	11 0069690	9 9530329	10 0022936	131	9 9977275
54 90123916	11912	11 0078483	7 7240450	9 0142682	12339	11 0057318	9 9528929	10 0023067	130	9 9977160
55 90137118	11866	11 0065887	7 7264930	9 0155021	12304	11 0044979	9 9527528	10 0023197	131	9 9977045
56 90150396	11820	11 0053290	7 7289341	9 0167325	12269	11 0032615	9 9526127	10 0023328	132	9 9976930
57 90163613	11774	11 0040693	7 7313643	9 0179594	12237	11 0020206	9 9524725	10 0023460	132	9 9976815
58 90176823	11728	11 0028096	7 7337958	9 0191831	12202	11 0007816	9 9523323	10 0023592	133	9 9976700
59 90190039	11682	11 0015499	7 7362161	9 0204033	12169	11 0095467	9 9521921	10 0023724	133	9 9976585
60 90203246	11636	11 0002902	7 7386303	9 021620		11 0083798	9 9520518	10 0023857		9 9976470
Cofine	Diff	Secant	Coverf	Cotang	Diff	Tang	Veriedf	Cofec	D	Sine

6 Deg.		NATURAL SINES, &c								Tab 10	
	Sine	Dif	Coverf	Cofec.	Ting	Cotang	Secant	Verf	D	Cofine	
0	1045285		8954715	9566772	1051042	9514364	10055083	0054781		9945219	60
1	1048178	893	8951822	9540368	1053983	9487814	10055391	0055086	305	9944914	59
2	1051070	2892	8948930	9514110	1056925	9461411	10055699	0055391	305	9944609	58
3	1053963	-893	8946037	9487998	1059866	9435153	10056009	0055697	306	9944303	57
4	1056856	-893	8943144	9462029	1062808	9409038	10056319	0056004	307	9943996	56
5	1059748	2892	8940252	9436203	1065750	9383066	10056631	0056311	308	9943688	55
6	1062641	893	8937359	9410518	1068692	9357355	10056943	0056621	309	9943379	54
7	1065533	2892	8934467	9384913	1071634	9331545	10057256	0056930	309	9943070	53
8	1068425	2892	8931575	9359568	1074576	9305993	10057570	0057240	310	9942760	52
9	1071318	2893	8928682	9334300	1077519	9280580	10057885	0057552	312	9942448	51
10	1074210	2892	8925790	9309169	1080462	9255303	10058200	0057864	311	9942136	50
11	1077102	-892	8922898	9284174	1083405	9230162	10058517	0058177	313	9941823	49
12	1079994	2892	8920006	9259314	1086348	9205156	10058834	0058490	313	9941510	48
13	1082885	-891	8917115	9234587	1089291	9180283	10059153	0058805	315	9941195	47
14	1085777	2892	8914223	9209934	1092234	9155543	10059472	0059120	315	9940880	46
15	1088669	2892	8911331	9185530	1095178	9130934	10059792	0059437	317	9940563	45
16	1091560	2891	8908440	9161198	1098122	9106456	10060113	0059754	317	9940246	44
17	1094451	2892	8905548	9136949	1101066	9082107	10060435	0060072	318	9939928	43
18	1097343	2891	8902657	9112920	1104010	9057867	10060757	0060390	318	9939610	42
19	1100234	-891	8899766	9088972	1106955	9033793	10061081	0060710	320	9939290	41
20	1103126	2892	8896874	9065151	1109899	9009826	10061405	0061031	321	9938969	40
21	1106017	2891	8893983	9041453	1112844	8985984	10061731	0061352	321	9938648	39
22	1108908	2891	8891092	9017883	1115789	8962268	10062057	0061674	322	9938326	38
23	1111799	2891	8888201	8994435	1118734	8938672	10062384	0061997	323	9938003	37
24	1114689	2890	8885311	8971109	1121680	8915200	10062712	0062321	324	9937679	36
25	1117580	2891	8882420	8947905	1124625	8891850	10063040	0062645	324	9937355	35
26	1120471	-891	8879529	8924811	1127571	8868620	10063370	0062971	326	9937029	34
27	1123361	2890	8876639	8901856	1130517	8845510	10063701	0063297	326	9936703	33
28	1126252	2891	8873748	8879010	1133463	8822518	10064032	0063623	328	9936375	32
29	1129142	2890	8870858	8856282	1136410	8799644	10064364	0063953	328	9936047	31
30	1132032	2890	8867968	8833671	1139356	8776874	10064697	0064281	328	9935719	30
31	1134922	-890	8865078	8811176	1142303	8754246	10065031	0064611	330	9935389	29
32	1137812	2890	8862188	8788795	1145250	8731719	10065366	0064942	331	9935058	28
33	1140702	2890	8859298	8766529	1148197	8709307	10065702	0065273	331	9934727	27
34	1143592	2890	8856408	8744376	1151144	8687008	10066039	0065605	332	9934395	26
35	1146482	2890	8853518	8722336	1154092	8664523	10066376	0065938	333	9934062	25
36	1149372	2890	8850628	8700407	1157039	8642747	10066714	0066272	334	9933728	24
37	1152261	2889	8847739	8678589	1159987	8620783	10067054	0066607	335	9933393	23
38	1155151	2890	8844849	8656880	1162936	8598929	10067394	0066943	336	9933057	22
39	1158040	2889	8841960	8635281	1165884	8577183	10067735	0067279	336	9932721	21
40	1160929	2889	8839071	8613790	1168832	8555546	10068077	0067616	337	9932384	20
41	1163818	2889	8836182	8592406	1171781	8534017	10068419	0067955	339	9932045	19
42	1166707	2889	8833293	8571129	1174730	8512594	10068763	0068294	339	9931706	18
43	1169596	2889	8830404	8549958	1177679	8491272	10069108	0068633	339	9931367	17
44	1172485	2889	8827515	8528892	1180628	8470065	10069453	0068974	341	9931026	16
45	1175374	2889	8824626	8507930	1183578	8448957	10069799	0069315	341	9930685	15
46	1178263	2889	8821737	8487072	1186528	8427953	10070146	0069658	343	9930342	14
47	1181151	2888	8818849	8466316	1189478	8407051	10070494	0070001	343	9929999	13
48	1184040	2889	8815960	8445662	1192428	8386251	10070843	0070345	344	9929655	12
49	1186928	2888	8813072	8425110	1195378	8365536	10071193	0070690	345	9929310	11
50	1189816	2888	8810184	8404658	1198329	8344958	10071544	0071035	345	9928965	10
51	1192704	2888	8807296	8384306	1201279	8324457	10071895	0071382	347	9928618	9
52	1195593	2889	8804407	8364054	1204230	8304058	10072248	0071729	347	9928271	8
53	1198481	-888	8801519	8343898	1207182	8283759	10072601	0072078	349	9927922	7
54	1201368	2887	8798632	8323841	1210133	8263554	10072955	0072427	349	9927573	6
55	1204256	2888	8795744	8303881	1213085	8243448	10073310	0072776	349	9927224	5
56	1207144	2887	8792856	8284017	1216036	8223438	10073666	0073127	351	9926873	4
57	1210031	2888	8789969	8264248	1218988	8203523	10074023	0073479	352	9926521	3
58	1212919	2887	8787081	8244574	1221941	8183704	10074380	0073831	352	9926169	2
59	1215806	2887	8784194	8224995	1224893	8163978	10074739	0074184	353	9925816	1
60	1218693	2887	8781307	8205509	1227846	8144346	10075098	0074538	354	9925462	0
	Cofine	Dif	Verf.	Secant	Cotan.	Tang	Cofec	Coverf	D	Sine	

	Sine	Diff	Cotang	Verifed	Tang	Diff	Cotang	Coverf	Secant	D	Cosine
0	019234	100	109807654	77380303	0216202	12136	109783738	9950518	100023857	132	99976143
1	020438	11970	109795652	77410375	0228338	12103	109771662	99519115	100023989	134	99976011
2	021642	11936	109783682	77434380	0240441	12069	109759559	99533043	100024123	136	99975877
3	022851	11903	109771746	77458319	0252510	12038	109747490	99546970	100024257	138	99975743
4	024057	11870	109759843	77482119	0264518	12004	109735455	99560897	100024391	140	99975609
5	025202	11838	109747973	77505999	0276552	11972	109723440	99574824	100024525	142	99975475
6	026386	11804	109736135	77529774	0288521	11940	109711476	99588751	100024660	144	99975340
7	027506	11773	109724331	77553419	0300464	11909	109699536	99602678	100024795	146	99975205
8	028742	11741	109712558	77577031	0312373	11876	109687627	99616605	100024931	148	99975069
9	029918	11710	109700814	77600680	0324409	11844	109675711	99630532	100025067	150	99974933
10	031089	11677	109689110	77624316	0336093	11813	109663807	99644459	100025203	152	99974797
11	032256	11645	109677433	77647945	0347701	11781	109651904	99658386	100025340	154	99974660
12	033411	11613	109665788	77671564	0359688	11751	109640031	99672313	100025477	156	99974523
13	034582	11581	109654175	77695183	0371439	11720	109628158	99686240	100025614	158	99974386
14	035740	11551	109642593	77718797	0383159	11689	109616284	99700167	100025752	160	99974248
15	036895	11519	109631044	77742404	0394848	11658	109604411	99714094	100025890	162	99974110
16	038047	11489	109619533	77766006	0406506	11628	109592538	99728021	100026029	164	99973971
17	039196	11458	109608031	77789606	0418134	11597	109580665	99741948	100026167	166	99973833
18	040344	11428	109596576	77813204	0429731	11568	109568792	99755875	100026307	168	99973695
19	041483	11397	109585143	77836801	0441299	11537	109556919	99769802	100026446	170	99973554
20	042621	11366	109573751	77860397	0452836	11507	109545046	99783729	100026586	172	99973414
21	043761	11337	109562382	77883992	0464343	11476	109533173	99797656	100026726	174	99973273
22	044895	11307	109551046	77907587	0475821	11449	109521300	99811583	100026867	176	99973132
23	046026	11277	109539739	77931182	0487270	11419	109509427	99825510	100027009	178	99972991
24	047153	11248	109528462	77954777	0498689	11389	109497554	99839437	100027150	180	99972850
25	048278	11219	109517214	77978372	0510078	11361	109485681	99853364	100027292	182	99972709
26	049400	11189	109505995	78001967	0521459	11333	109473808	99867291	100027434	184	99972568
27	050519	11160	109494806	78025562	0532840	11303	109461935	99881218	100027577	186	99972427
28	051635	11131	109483616	78049157	0544201	11275	109450062	99895145	100027720	188	99972286
29	052748	11103	109472427	78072752	0555549	11246	109438189	99909072	100027863	190	99972145
30	053858	11073	109461238	78096347	0566895	11218	109426316	99922999	100028007	192	99972004
31	054966	11045	109450049	78119942	0578213	11189	109414443	99936926	100028151	194	99971863
32	056070	11017	109438860	78143537	0589531	11162	109402570	99950853	100028295	196	99971722
33	057173	10988	109427671	78167132	0600849	11133	109390697	99964780	100028439	198	99971581
34	058277	10961	109416482	78190727	0612167	11106	109378824	99978707	100028583	200	99971440
35	059381	10932	109405293	78214322	0623485	11079	109366951	99992634	100028727	202	99971299
36	060485	10905	109394104	78237917	0634803	11051	109355078	100000531	100028871	204	99971158
37	061589	10877	109382915	78261512	0646121	11023	109343205	100000808	100029015	206	99971017
38	062693	10849	109371726	78285107	0657439	10997	109331332	100001085	100029159	208	99970876
39	063797	10822	109360537	78308702	0668757	10969	109319459	100001362	100029303	210	99970735
40	064901	10795	109349348	78332297	0680075	10943	109307586	100001639	100029447	212	99970594
41	066005	10767	109338159	78355892	0691393	10916	109295713	100001916	100029591	214	99970453
42	067109	10741	109326970	78379487	0702711	10889	109283840	100002193	100029735	216	99970312
43	068213	10714	109315781	78403082	0714029	10863	109271967	100002470	100029879	218	99970171
44	069317	10687	109304592	78426677	0725347	10836	109260094	100002747	100030023	220	99970030
45	070421	10660	109293403	78450272	0736665	10810	109248221	100003024	100030167	222	99969889
46	071525	10633	109282214	78473867	0747983	10784	109236348	100003301	100030311	224	99969748
47	072629	10606	109271025	78497462	0759301	10758	109224475	100003578	100030455	226	99969607
48	073733	10581	109259836	78521057	0770619	10732	109212602	100003855	100030600	228	99969466
49	074837	10555	109248647	78544652	0781937	10707	109200729	100004132	100030744	230	99969325
50	075941	10530	109237458	78568247	0793255	10681	109188856	100004409	100030888	232	99969184
51	077045	10503	109226269	78591842	0804573	10655	109176983	100004686	100031032	234	99969043
52	078149	10477	109215080	78615437	0815891	10630	109165110	100004963	100031176	236	99968902
53	079253	10451	109203891	78639032	0827209	10605	109153237	100005240	100031320	238	99968761
54	080357	10427	109192702	78662627	0838527	10580	109141364	100005517	100031464	240	99968620
55	081461	10401	109181513	78686222	0849845	10555	109129491	100005794	100031608	242	99968479
56	082565	10376	109170324	78709817	0861163	10530	109117618	100006071	100031752	244	99968338
57	083669	10351	109159135	78733412	0872481	10505	109105745	100006348	100031896	246	99968197
58	084773	10326	109147946	78757007	0883799	10480	109093872	100006625	100032040	248	99968056
59	085877	10302	109136757	78780602	0895117	10457	109082000	100006902	100032184	250	99967915
60	086981	10277	109125568	78804197	0906435						
	Cosine	Diff	Secant	Coverf	Cotang	Diff	Tang	Verifed	Cotang	D	Sine

7 Deg. NATURAL SINES, &c Tab 10											
Sine	Diff.	Coveif	Colcc.	Lang	Cotang	Secant	Veri	D	Coline		
1214604	2888	8781307	82055090	1227846	81443464	10075098	0074538		9925462	60	
1221551	2887	8778419	81861157	1230798	81248071	10075459	0074893	355	9925107	59	
1228495	2887	8775532	81668145	1233752	81053599	10075820	0075249	356	9924751	58	
1235437	2886	8772645	81476048	1236705	80860042	10076182	0075606	357	9924394	57	
1242379	2886	8769759	81284860	1239658	80667394	10076545	0075963	357	9924037	56	
1249321	2885	8766872	81094573	1242612	80475647	10076908	0076321	358	9923679	55	
1256263	2885	8763985	80905182	1245566	80284796	10077273	0076681	360	9923319	54	
1263205	2885	8761099	80716081	1248520	80094835	10077639	0077041	360	9922959	53	
1270147	2884	8758212	80529062	1251474	79905756	10078005	0077401	362	9922599	52	
1277089	2884	8755326	80342321	1254429	79717555	10078372	0077763	363	9922237	51	
1284031	2884	8752440	80156450	1257384	79530244	10078741	0078126	363	9921877	50	
1290973	2883	8749554	79971445	1260339	79343758	10079110	0078489	361	9921511	49	
1297915	2883	8746668	79787298	1263294	79158151	10079480	0078853	365	9921147	48	
1304857	2883	8743782	79604003	1266249	78973396	10079851	0079218	366	9920782	47	
1311799	2883	8740896	79421556	1269205	78789489	10080222	0079584	367	9920416	46	
1318741	2883	8738010	79239950	1272161	78606423	10080595	0079951	367	9920049	45	
1325683	2882	8735125	79059179	1275117	78424191	10080968	0080318	368	9919682	44	
1332625	2882	8732239	78879238	1278073	78242790	10081343	0080680	370	9919314	43	
1339567	2882	8729354	78700120	1281030	78062212	10081718	0081056	370	9918944	42	
1346509	2882	8726469	78521821	1283986	77882453	10082094	0081426	370	9918574	41	
1353451	2882	8723584	78344335	1286943	77703506	10082471	0081796	372	9918204	40	
1360393	2882	8720698	78167656	1289900	77525366	10082849	0082168	373	9917832	39	
1367335	2882	8717814	77991778	1292858	77348028	10083228	0082541	373	9917459	38	
1374277	2882	8714929	77816697	1295815	77171486	10083607	0082914	374	9917086	37	
1381219	2882	8712044	77642406	1298773	76995735	10083988	0083288	375	9916712	36	
1388161	2882	8709159	77468901	1301731	76820769	10084369	0083663	376	9916337	35	
1395103	2882	8706275	77296176	1304690	76646584	10084752	0084039	377	9915961	34	
1402045	2882	8703391	77124227	1307648	76473174	10085135	0084416	378	9915584	33	
1408987	2882	8700506	76953047	1310607	76300533	10085519	0084794	378	9915206	32	
1415929	2882	8697622	76782631	1313566	76128657	10085904	0085172	379	9914828	31	
1422871	2882	8694738	76612976	1316525	75957541	10086290	0085551	380	9914449	30	
1429813	2882	8691854	76444075	1319484	75787179	10086676	0085931	381	9914069	29	
1436755	2882	8688970	76275923	1322444	75617567	10087064	0086312	382	9913688	28	
1443697	2882	8686087	76108516	1325404	75448099	10087452	0086694	383	9913306	27	
1450639	2882	8683203	75941849	1328364	75280571	10087842	0087077	383	9912923	26	
1457581	2882	8680319	75775916	1331324	75113178	10088232	0087460	385	9912540	25	
1464523	2882	8677436	75610713	1334285	74946514	10088623	0087845	385	9912155	24	
1471465	2882	8674553	75446236	1337246	74780576	10089015	0088230	386	9911770	23	
1478407	2882	8671670	75282478	1340207	74615357	10089408	0088616	387	9911384	22	
1485349	2882	8668787	75119437	1343168	74450855	10089802	0089003	387	9910997	21	
1492291	2882	8665904	74957106	1346129	74287064	10090196	0089390	389	9910610	20	
1499233	2882	8663021	74795482	1349091	74123978	10090592	0089779	389	9910221	19	
1506175	2882	8660138	74634560	1352053	73961595	10090988	0090168	390	9909832	18	
1513117	2882	8657256	74474335	1355015	73799909	10091386	0090558	391	9909442	17	
1520059	2882	8654373	74314803	1357978	73638916	10091784	0090949	391	9909051	16	
1527001	2882	8651491	74155959	1360940	73478610	10092183	0091341	392	9908659	15	
1533943	2882	8648608	73997798	1363903	73318989	10092583	0091734	393	9908266	14	
1540885	2882	8645726	73840318	1366866	73160047	10092984	0092127	393	9907873	13	
1547827	2882	8642844	73683512	1369830	73001780	10093386	0092522	395	9907478	12	
1554769	2882	8639962	73527377	1372793	72844184	10093788	0092917	395	9907083	11	
1561711	2882	8637081	73371909	1375757	72687255	10094192	0093313	396	9906687	10	
1568653	2882	8634199	73217102	1378721	72530987	10094596	0093710	397	9906290	9	
1575595	2882	8631317	73062954	1381685	72375378	10095001	0094107	397	9905893	8	
1582537	2882	8628436	72909460	1384650	72220422	10095408	0094506	399	9905494	7	
1589479	2882	8625555	72756616	1387615	72066116	10095815	0094905	401	9905095	6	
1596421	2882	8622673	72604417	1390580	71912456	10096223	0095306	401	9904694	5	
1603363	2882	8619792	72452859	1393545	71759437	10096631	0095707	402	9904293	4	
1610305	2882	8616911	72301940	1396510	71607056	10097041	0096109	402	9903891	3	
1617247	2882	8614030	72151653	1399476	71455308	10097452	0096511	404	9903489	2	
1624189	2882	8611150	72001996	1402442	71304190	10097863	0096915	404	9903085	1	
1631131	2882	8608269	71852965	1405408	71153697	10098276	0097319	404	9902681	0	
Coline	Diff.	Verf.	Secant	Cotan	Lang	Colcc	Coveif	D	Sine		

7 Deg

LOG SINIS, &c

(263)

7	Sine	Diff	Cosec	Verifed	Tang	Diff	Cotang	Coverf	Secant	D	Cofine	
0	90858915	10	10141055	7 97 3801	10891418	10431	10910856	1435591	100032493	155	99967507	60
1	90869221	10 76	10130779	78744436	90901869	10408	10908131	99134163	10003 648	156	9996735	59
2	908771473	10 5	10105 7	78765017	9091277	10408	109087723	99432735	100032804	156	99967196	58
3	90880700	102 1	109110300	78785550	90922660	10383	109077340	99431306	10003 961	156	99967040	57
4	90899973	10 03	1091 09	78806033	909330 0	10360	109066900	99419876	100033116	157	99966884	56
5	9091008	10179	109039918	78826469	90943355	10335	109056645	99418447	100033273	157	99966727	55
6	9092013	10155	109099763	788468 0	90953667	1031	109046333	99417016	100033430	158	99966571	54
7	9093036	10130	109069633	78867100	90963955	10 8	10903615	99415586	100033588	158	99966411	53
8	90940411	10107	1090515 1	78887437	90974210	10 61	109025781	99414155	100033746	158	99966251	52
9	90950556	1008	109031144	78907772	90984460	10241	109015510	99412723	100033904	159	99966096	51
10	90960615	10059	109010335	78928107	90994678	10218	109005322	99411291	100034063	159	99965937	50
11	90970651	10036	108990318	78948442	91004872	10191	108995128	99409859	100034221	159	99965777	49
12	90980687	10011	108970338	78968777	91015074	1017	108984956	99408428	100034381	160	99965619	48
13	90990651	9989	108950339	78989112	91025272	1014	108974807	99406993	100034541	160	99965459	47
14	91000616	9965	108930384	79009447	91035477	101 5	108964658	99405560	100034701	161	99965299	46
15	91010558	9941	108910411	79029782	91045682	10103	108954509	99404126	100034862	161	99965139	45
16	91020477	9917	108890438	79050117	91055887	10080	108944360	99402691	100035022	161	99964979	44
17	91030373	9893	108870465	79070452	91066092	10057	108934211	99401256	100035184	161	99964819	43
18	91040260	9869	108850492	79090787	91076297	10031	108924062	99400000	100035345	162	99964659	42
19	91050146	9845	108830519	79111122	91086502	10013	108913913	99398565	100035507	162	99964499	41
20	910599 4	9821	108810546	79131457	91096707	9990	108903764	99397130	100035670	163	99964339	40
21	910697 9	9797	108790573	79151792	91106912	9965	108893615	99395695	100035833	163	99964179	39
22	91079512	9773	108770600	79172127	91117117	9940	108883466	99394260	100035996	163	99964019	38
23	91089221	9749	108750627	79192462	91127322	9923	108873317	99392825	100036159	164	99963859	37
24	91098910	9725	108730654	79212797	91137527	9900	108863168	99391390	100036323	164	99963699	36
25	911087 0	9701	108710681	79233132	91147732	9880	108853019	99389955	100036487	165	99963539	35
26	911184 0	9677	108690708	79253467	91157937	9855	108842870	99388520	100036652	165	99963379	34
27	911281 9	9653	108670735	79273802	91168142	9831	108832721	99387085	100036817	165	99963219	33
28	91137712	9629	108650762	79294137	91178347	9815	108822572	99385650	100036982	166	99963059	32
29	91147310	9605	108630789	79314472	91188552	9794	108812423	99384215	100037148	166	99962899	31
30	91156917	9581	108610816	79334807	91198757	9773	108802274	99382780	100037314	167	99962739	30
31	91166502	9557	108590843	79355142	91208962	9755	108792125	99381345	100037481	167	99962579	29
32	91176115	9533	108570870	79375477	91219167	9730	108781976	99379910	100037648	167	99962419	28
33	91185728	9509	108550897	79395812	91229372	9709	108771827	99378475	100037815	168	99962259	27
34	91195341	9485	108530924	79416147	91239577	9689	108761678	99377040	100037982	168	99962099	26
35	91204954	9461	108510951	79436482	91249782	9668	108751529	99375605	100038150	168	99961939	25
36	91214567	9437	108490978	79456817	91259987	9647	108741380	99374170	100038317	169	99961779	24
37	91224180	9413	108471005	79477152	91270192	9626	108731231	99372735	100038485	169	99961619	23
38	91233793	9389	108451032	79497487	91280397	9606	108721082	99371300	100038652	169	99961459	22
39	91243406	9365	108431059	79517822	91290602	9585	108710933	99369865	100038820	170	99961299	21
40	91253019	9341	108411086	79538157	91300807	9565	108700784	99368430	100038987	170	99961139	20
41	91262632	9317	108391113	79558492	91311012	9545	108690635	99366995	100039155	171	99960979	19
42	91272245	9293	108371140	79578827	91321217	9524	108680486	99365560	100039322	171	99960819	18
43	91281858	9269	108351167	79599162	91331422	9505	108670337	99364125	100039490	171	99960659	17
44	91291471	9245	108331194	79619497	91341627	9481	108660188	99362690	100039657	172	99960499	16
45	91301084	9221	108311221	79639832	91351832	9460	108650039	99361255	100039825	172	99960339	15
46	91310697	9197	108291248	79660167	91362037	9439	108640000	99359820	100040000	173	99960179	14
47	91320310	9173	108271275	79680502	91372242	9418	108630000	99358385	100040175	173	99960019	13
48	91329923	9149	108251302	79700837	91382447	9397	108620000	99356950	100040350	173	99959859	12
49	91339536	9125	108231329	79721172	91392652	9376	108610000	99355515	100040525	174	99959699	11
50	91349149	9101	108211356	79741507	91402857	9355	108600000	99354080	100040700	174	99959539	10
51	91358762	9077	108191383	79761842	91413062	9334	108590000	99352645	100040875	175	99959379	9
52	91368375	9053	108171410	79782177	91423267	9313	108580000	99351210	100041050	175	99959219	8
53	91377988	9029	108151437	79802512	91433472	9292	108570000	99349775	100041225	175	99959059	7
54	91387601	9005	108131464	79822847	91443677	9271	108560000	99348340	100041400	176	99958899	6
55	91397214	8981	108111491	79843182	91453882	9250	108550000	99346905	100041575	176	99958739	5
56	91406827	8957	108091518	79863517	91464087	9229	108540000	99345470	100041750	177	99958579	4
57	91416440	8933	108071545	79883852	91474292	9208	108530000	99344035	100041925	177	99958419	3
58	91426053	8909	108051572	79904187	91484497	9187	108520000	99342600	100042100	177	99958259	2
59	91435666	8885	108031599	79924522	91494702	9166	108510000	99341165	100042275	178	99958099	1
60	91445279	8861	108011626	79944857	91504907	9145	108500000	99339730	100042450	178	99957939	0

Deg.

8 Deg		NATURAL SINES, &c										Tab 10	
/	Sine	Dif	Coverd	Colec	Tang	Cotang	Secant	Veil	D	Cofine			
0	1391731	2881	5608269	7 185-965	1405408	7 1153697	1 0098276	0097319		990-681	60		
1	1394612	2880	8605388	7 1704556	1408375	7 10038-6	1 0098689	0097725	406	9902275	59		
2	1397492	2880	8602508	7 1556764	1411342	7 0854573	1 0099103	0098131	406	9901869	58		
3	1400372	2880	8599628	7 1409587	1414308	7 0705934	1 0099518	0098538	407	9901462	57		
4	1403252	2880	8596748	7 1263019	1417276	7 0557905	1 0099934	0098945	407	9901055	56		
5	1406132	2880	8593868	7 1117059	1420243	7 0410482	1 0100351	0099354	409	9900646	55		
6	1409012	2880	8590988	7 0971700	1423211	7 0263662	1 0100769	0099763	409	9900237	54		
7	1411892	2880	8588108	7 0826941	1426179	7 0117441	1 0101187	0100174	411	9899826	53		
8	1414772	2879	8585228	7 0682777	1429147	6 9971806	1 0101607	0100585	411	9899415	52		
9	1417651	2880	8582349	7 0539-05	1432115	6 9826781	1 01020-7	0100997	412	9899003	51		
10	1420531	2879	8579469	7 0396220	1435084	6 9682335	1 0102449	0101410	413	9898590	50		
11	1423410	2879	8576590	7 0-53820	1438053	6 9538473	1 0102871	0101823	413	9898177	49		
12	1426289	2879	8573711	7 0112001	1441022	6 9395192	1 0103294	0102238	415	9897762	48		
13	1429168	2879	8570832	6 9970760	1443991	6 9252489	1 0103718	0102653	415	9897347	47		
14	1432047	2879	8567953	6 9830092	1446961	6 9110359	1 0104143	0103069	416	9896931	46		
15	1434926	2879	8565074	6 9689994	1449931	6 8968799	1 0104568	0103486	417	9896514	45		
16	1437805	2879	8562195	6 9550464	1452901	6 8827807	1 0104995	0103904	418	9896096	44		
17	1440684	2879	8559316	6 9411496	1455872	6 8687378	1 0105422	01043-3	419	9895677	43		
18	144356-	2878	8556438	6 9273089	1458842	6 8547508	1 0105851	0104742	419	9895258	42		
19	1446440	2879	8553560	6 9135239	1461813	6 8408196	1 0106280	0105162	420	9894838	41		
20	1449319	2878	8550681	6 8997942	1464784	6 8269437	1 0106710	0105584	422	9894416	40		
21	1452197	2878	8547803	6 8861195	1467756	6 8131227	1 0107141	0106006	422	9893994	39		
22	1455075	2878	8544925	6 8724995	1470727	6 7993565	1 0107573	0106428	422	9893572	38		
23	1457953	2878	8542047	6 8589338	1473699	6 7856446	1 0108006	0106852	424	9893148	37		
24	1460830	2877	8539170	6 8454222	1476672	6 7719867	1 0108440	0107277	425	9892723	36		
25	1463708	2877	8536292	6 8319642	1479644	6 7583826	1 0108875	0107702	425	9892298	35		
26	1466585	2878	8533415	6 8185597	1482617	6 7448318	1 0109310	0108128	426	9891872	34		
27	1469463	2877	8530537	6 8052082	1485590	6 7313341	1 0109747	0108555	427	9891445	33		
28	1472340	2877	8527660	6 7919095	1488563	6 7178891	1 0110184	0108983	428	9891017	32		
29	1475217	2877	8524783	6 7786632	1491536	6 7044966	1 0110622	0109412	429	9890588	31		
30	1478094	2877	8521906	6 7654691	1494510	6 6911562	1 0111061	0109841	429	9890159	30		
31	1480971	2877	8519029	6 7523268	1497484	6 6778677	1 0111501	0110272	431	9889728	29		
32	1483848	2877	8516152	6 7392360	1500458	6 6646307	1 0111942	0110703	431	9889297	28		
33	1486724	2876	8513276	6 7261965	1503433	6 6514449	1 0112384	0111135	432	9888865	27		
34	1489601	2876	8510399	6 7132079	1506408	6 6383100	1 0112827	0111568	433	9888432	26		
35	1492477	2876	8507523	6 7002699	1509383	6 6252258	1 0113270	0112002	434	9887998	25		
36	1495353	2877	8504647	6 6873822	1512358	6 6121919	1 0113715	0112436	434	9887564	24		
37	1498230	2876	8501770	6 6745446	1515333	6 5992080	1 0114160	0112872	436	9887128	23		
38	1501106	2875	8498894	6 6617568	1518309	6 5862739	1 0114606	0113308	436	9886692	22		
39	1503981	2875	8496019	6 6490184	1521285	6 573389-	1 0115054	0113745	437	9886255	21		
40	1506857	2876	8493143	6 6363293	1524262	6 5605538	1 0115502	0114183	438	9885817	20		
41	1509733	2876	8490267	6 6236890	1527238	6 5477672	1 0115951	0114622	439	9885378	19		
42	1512608	2875	8487392	6 6110973	1530215	6 5350293	1 0116400	0115061	439	9884939	18		
43	1515484	2875	8484516	6 5985540	153319-	6 5223396	1 0116851	0115502	441	9884499	17		
44	1518359	2875	8481641	6 5860587	1536170	6 5096981	1 0117303	0115943	441	988405-	16		
45	1521234	2875	8478766	6 5736112	1539147	6 4971043	1 0117755	0116385	442	9883615	15		
46	1524109	2875	8475891	6 5612113	1542125	6 4845581	1 0118209	0116828	443	9883172	14		
47	1526984	2874	8473016	6 5488586	1545103	6 4720591	1 0118663	0117272	444	9882728	13		
48	1529858	2875	8470142	6 5365528	1548082	6 4596070	1 0119118	0117716	444	9882284	12		
49	1532733	2874	8467267	6 5242938	1551061	6 447-017	1 0119575	0118162	446	9881830	11		
50	1535607	2875	8464393	6 5120812	1554040	6 4348428	1 0120032	0118608	446	9881392	10		
51	1538482	2874	8461518	6 4999148	1557019	6 4225301	1 0120489	0119055	447	9880945	9		
52	1541356	2874	8458644	6 4877944	1559998	6 4102633	1 0120948	0119503	448	9880497	8		
53	1544230	2874	8455770	6 4757195	1562978	6 398042	1 0121408	0119952	449	9880048	7		
54	1547104	2874	8452896	6 4636901	1565958	6 3858665	1 0121869	0120401	449	9879599	6		
55	1549978	2873	8450022	6 4517059	1568939	6 3737359	1 0122330	0120852	451	9879148	5		
56	1552851	2874	8447149	6 4397666	1571919	6 3616502	1 0122793	0121303	451	9878697	4		
57	1555725	2873	8444275	6 4278719	1574900	6 3496092	1 0123256	0121755	453	9878245	3		
58	1558598	2874	8441402	6 4160-16	1577881	6 33761-6	1 0123720	0122208	453	9877792	2		
59	1561472	2873	8438528	6 4041-154	1580863	6 3256601	1 0124185	0122662	454	9877338	1		
60	1564345	2873	8435655	6 39-4532	1583844	6 3137515	1 0124651	0123117	455	9876883	0		
	Cofine	Dif.	Veil.	Secant	Cotan	Tang	Colec	Coverd	D	Sine	/		

8 Deg		Log Sines, &c										(263)
	Sine	Dif	Cosec	Verfedf	Tang	Dif	Cotang	Covers	Secant	D	Coline	
0	1435553	8979	10 8564447	7 9881990	9 1478025	9157	10 8521975	9 9349158	10 0042472	178	9 9957528	
1	1444532	8961	10 8555468	7 9900038	9 1487182	9139	10 8512818	9 9347705	10 0042650	178	9 9957350	
2	1452493	8942	10 8546507	7 9918047	9 1496321	9120	10 8503679	9 9346251	10 0042828	179	9 9957172	
3	1460435	8923	10 8537565	7 9936020	9 1505441	9102	10 8494559	9 9344797	10 0043007	178	9 9956994	
4	1471358	8904	10 8528642	7 9953955	9 1514543	9084	10 8485457	9 9343342	10 0043185	180	9 9956816	
5	1480262	8886	10 8519738	7 9971853	9 1523627	9065	10 8476373	9 9341887	10 0043365	179	9 9956638	
6	1489148	8867	10 8510852	7 9989713	9 1532692	9047	10 8467308	9 9340431	10 0043544	180	9 9956460	
7	1498015	8849	10 8501985	8 0007537	9 1541739	9030	10 8458261	9 9338975	10 0043724	181	9 9956282	
8	1506864	8830	10 8493136	8 0025325	9 1550769	9011	10 8449231	9 9337518	10 0043905	180	9 9956104	
9	1515694	8813	10 8484306	8 0043076	9 1559780	9993	10 8440220	9 9336062	10 0044085	181	9 9955926	
10	1524507	8794	10 8475493	8 0060790	9 1568773	9975	10 8431227	9 9334604	10 0044266	182	9 9955748	
11	1533301	8775	10 8466699	8 0078468	9 1577748	9958	10 8422252	9 9333146	10 0044448	181	9 9955570	
12	1542076	8758	10 8457924	8 0096110	9 1586706	9940	10 8413294	9 9331688	10 0044630	182	9 9955392	
13	1550834	8740	10 8449166	8 0113716	9 1595646	9923	10 8404354	9 9330230	10 0044812	183	9 9955214	
14	1559574	8722	10 8440426	8 0131287	9 1604569	9904	10 8395431	9 9328771	10 0044995	183	9 9955036	
15	1568296	8704	10 8431704	8 0148822	9 1613473	9888	10 8386527	9 9327311	10 0045178	184	9 9954858	
16	1577000	8686	10 8423000	8 0166321	9 1622361	9870	10 8377639	9 9325851	10 0045361	184	9 9954680	
17	1585686	8668	10 8414314	8 0183785	9 1631231	9852	10 8368769	9 9324391	10 0045545	181	9 9954502	
18	1594354	8651	10 8405646	8 0201213	9 1640083	9836	10 8359917	9 9322930	10 0045729	184	9 9954324	
19	1603005	8634	10 8396995	8 0218607	9 1648919	9818	10 8351081	9 9321469	10 0045913	185	9 9954146	
20	1611639	8615	10 8388361	8 0235965	9 1657737	9801	10 8342263	9 9320007	10 0046098	185	9 9953968	
21	1620254	8599	10 8379746	8 0253289	9 1666538	9784	10 8333462	9 9318545	10 0046283	186	9 9953790	
22	1628853	8581	10 8371147	8 0270578	9 1675322	9767	10 8324678	9 9317083	10 0046469	186	9 9953612	
23	1637434	8564	10 8362566	8 0287833	9 1684089	9750	10 8315911	9 9315620	10 0046655	187	9 9953434	
24	1645998	8546	10 8354002	8 0305053	9 1692839	9733	10 8307161	9 9314156	10 0046841	187	9 9953256	
25	1654541	8530	10 8345456	8 0322239	9 1701572	9717	10 8298428	9 9312693	10 0047028	188	9 9953078	
26	1663074	8512	10 8336926	8 0339391	9 1710289	9700	10 8289711	9 9311228	10 0047215	188	9 9952900	
27	1671586	8495	10 8328414	8 0356508	9 1718989	9683	10 8281011	9 9309764	10 0047403	189	9 9952722	
28	1680081	8478	10 8319919	8 0373592	9 1727672	9666	10 8272328	9 9308299	10 0047591	188	9 9952544	
29	1688559	8462	10 8311441	8 0390643	9 1736338	9650	10 8263662	9 9306833	10 0047779	189	9 9952366	
30	1697021	8444	10 8302979	8 0407659	9 1744988	9634	10 8255012	9 9305367	10 0047966	189	9 9952188	
31	1705465	8428	10 8294535	8 0424642	9 175362	9617	10 8246378	9 9303901	10 0048156	190	9 9952010	
32	1713893	8412	10 8286107	8 0441592	9 1762239	9601	10 8237761	9 9302434	10 0048346	190	9 9951832	
33	1722305	8394	10 8277695	8 0458509	9 1770840	9585	10 8229160	9 9300967	10 0048536	191	9 9951654	
34	1730699	8378	10 8269301	8 0475393	9 1779425	9568	10 8220575	9 9299499	10 0048726	191	9 9951476	
35	1739077	8362	10 8260923	8 0492243	9 1787993	9553	10 8212007	9 9298031	10 0048917	191	9 9951298	
36	1747439	8345	10 8252561	8 0509061	9 1796546	9536	10 8203454	9 9296563	10 0049107	191	9 9951120	
37	1755784	8328	10 8244216	8 0525846	9 1805082	9520	10 8194918	9 9295094	10 0049298	192	9 9950942	
38	1764112	8313	10 8235888	8 0542599	9 1813602	9504	10 8186398	9 9293624	10 0049490	192	9 9950764	
39	1772425	8296	10 8227575	8 0559319	9 1822106	9489	10 8177894	9 9292155	10 0049682	192	9 9950586	
40	1780721	8280	10 8219279	8 0576007	9 1830595	9473	10 8169405	9 9290684	10 0049874	193	9 9950408	
41	1789001	8264	10 8210999	8 0592663	9 1839068	9457	10 8160932	9 9289214	10 0050066	193	9 9950230	
42	1797265	8247	10 820235	8 060986	9 1847525	9441	10 8152475	9 9287743	10 0050256	191	9 9950052	
43	1805512	8232	10 8194484	8 0625878	9 1855966	9426	10 8144034	9 9286271	10 0050444	191	9 9949874	
44	1813744	8216	10 8186256	8 0642438	9 1864392	9410	10 8135608	9 9284799	10 0050632	191	9 9949696	
45	1821960	8200	10 8178040	8 0658966	9 1872802	9394	10 8127198	9 9283322	10 0050820	191	9 9949518	
46	1830160	8181	10 8169810	8 0675463	9 1881196	9379	10 8118804	9 9281854	10 0051006	195	9 9949340	
47	1838344	8168	10 8161656	8 0691928	9 1889575	9364	10 811045	9 9280380	10 0051193	196	9 9949162	
48	1846512	8153	10 8153488	8 0708362	9 1897939	9348	10 8102061	9 9278907	10 0051377	196	9 9948984	
49	1854665	8137	10 8145335	8 0724764	9 1906289	9334	10 8093713	9 9277433	10 0051561	196	9 9948806	
50	1862802	8121	10 8137198	8 0741136	9 1914621	9318	10 8085379	9 9275958	10 0051745	196	9 9948628	
51	1870923	8106	10 8129077	8 0757476	9 1922939	9302	10 8077061	9 9274483	10 0051929	197	9 9948450	
52	1879029	8091	10 8120971	8 0773786	9 1931241	9288	10 8068759	9 9273008	10 0052112	197	9 9948272	
53	1887120	8075	10 8112880	8 0790065	9 1939529	9273	10 8060471	9 9271533	10 0052296	197	9 9948094	
54	1895195	8059	10 8104805	8 0806313	9 1947802	9257	10 8052198	9 9270055	10 0052479	198	9 9947916	
55	1903254	8045	10 8096716	8 0822531	9 1956059	9243	10 8043941	9 9268579	10 0052663	198	9 9947738	
56	1911299	8029	10 8088701	8 0838718	9 1964302	9228	10 8035698	9 9267101	10 0052847	199	9 9947560	
57	1919328	8014	10 8080672	8 0854875	9 1972530	9213	10 8027470	9 9265624	10 0053031	199	9 9947382	
58	1927342	7999	10 8072658	8 0871002	9 1980743	9198	10 8019257	9 9264146	10 0053215	200	9 9947204	
59	1935341	7983	10 8064659	8 0887099	9 1988941	9184	10 8011059	9 9262667	10 0053399	200	9 9947026	
60	1943324	7967	10 8056676	8 0903166	9 1997125	9169	10 8002875	9 9261188	10 0053583	200	9 9946848	
1	Coline	Dif	Secant	Covers	Cotang	Dif	Tang	Verfedf	Cosec	D	Coline	

9 Deg	NATURAL SINES, &c								Tab. 10	
	Sine	Dif	Coverf	Cofec.	Tang.	Cot ing	Secant	Verf	D	Cofine
0	1564345	2873	8435655	6 3924532	1583844	6 3137515	1 0124651	0123117	455	9876883
1	1567218	2873	8432782	6 3807347	1586826	6 3018866	1 0125118	0123572	456	9876428
2	1570091	2872	8429909	6 3690595	1589809	6 2900651	1 0125586	0124028	458	9875972
3	1572963	2873	8427037	6 3574276	1592791	6 2782868	1 0126055	0124486	457	9875514
4	1575836	2872	8424164	6 3458386	1595774	6 2665515	1 0126524	0124943	459	9875057
5	1578708	2873	8421292	6 3342923	1598757	6 2548588	1 0126995	0125402	460	9874598
6	1581581	2872	8418419	6 3227884	1601740	6 2432086	1 0127466	0125862	460	9874138
7	1584453	2872	8415547	6 3113269	1604724	6 2316007	1 0127939	0126322	462	9873678
8	1587325	2872	8412675	6 2999073	1607708	6 2200347	1 0128412	0126784	462	9873216
9	1590197	2872	8409803	6 2885295	1610692	6 2085106	1 0128886	0127246	463	9872754
10	1593069	2871	8406931	6 2771933	1613677	6 1970279	1 0129361	0127709	464	9872291
11	1595940	2872	8404060	6 2658984	1616662	6 1855867	1 0129837	0128173	464	9871827
12	1598812	2871	8401188	6 2546446	1619647	6 1741865	1 0130314	0128637	466	9871363
13	1601683	2872	8398317	6 2434316	1622632	6 1628272	1 0130791	0129103	466	9870897
14	1604555	2871	8395445	6 2322594	1625618	6 1515085	1 0131270	0129569	467	9870431
15	1607426	2871	8392574	6 2211275	1628603	6 1402303	1 0131750	0130036	468	9869964
16	1610297	2870	8389703	6 2100359	1631590	6 1289923	1 0132230	0130504	469	9869496
17	1613167	2871	8386833	6 1989843	1634576	6 1177943	1 0132711	0130973	470	9869027
18	1616038	2871	8383962	6 1879725	1637563	6 1066360	1 0133194	0131443	470	9868555
19	1618909	2870	8381091	6 1770003	1640550	6 0955174	1 0133677	0131913	472	9868087
20	1621779	2871	8378221	6 1660674	1643537	6 0844361	1 0134161	0132385	472	9867615
21	1624650	2870	8375350	6 1551736	1646525	6 0733979	1 0134646	0132857	472	9867141
22	1627520	2870	8372480	6 1443189	1649513	6 0623967	1 0135132	0133330	474	9866670
23	1630390	2870	8369610	6 1335028	1652501	6 0514343	1 0135618	0133804	474	9866196
24	1633260	2869	8366740	6 1227253	1655489	6 0405103	1 0136106	0134278	476	9865722
25	1636129	2870	8363871	6 1119861	1658478	6 0296247	1 0136595	0134754	476	9865246
26	1638999	2869	8361001	6 1012850	1661467	6 0187772	1 0137084	0135230	476	9864770
27	1641868	2870	8358132	6 0906219	1664456	6 0079676	1 0137574	0135707	477	9864293
28	1644738	2869	8355262	6 0799964	1667446	5 9971957	1 0138066	0136185	478	9863815
29	1647607	2869	8352393	6 0694085	1670436	5 9864614	1 0138558	0136664	479	9863336
30	1650476	2869	8349524	6 0588580	1673426	5 9757644	1 0139051	0137144	480	9862856
31	1653345	2869	8346655	6 0483445	1676417	5 9651045	1 0139545	0137625	481	9862375
32	1656214	2868	8343786	6 0378680	1679407	5 9544815	1 0140040	0138106	481	9861894
33	1659082	2869	8340918	6 0274282	1682398	5 9438952	1 0140536	0138588	482	9861412
34	1661951	2868	8338049	6 0170250	1685390	5 9333455	1 0141032	0139071	483	9860929
35	1664819	2868	8335181	6 0066581	1688381	5 9228322	1 0141530	0139555	484	9860445
36	1667687	2869	8332313	5 9963274	1691373	5 9123550	1 0142029	0140040	485	9859960
37	1670556	2867	8329444	5 9860326	1694366	5 9019138	1 0142528	0140525	487	9859475
38	1673423	2868	8326577	5 9757737	1697358	5 8915084	1 0143028	0141012	487	9858988
39	1676291	2868	8323709	5 9655504	1700351	5 8811386	1 0143530	0141509	488	9858501
40	1679159	2867	8320841	5 9553625	1703344	5 8708042	1 0144032	0141987	488	9858013
41	1682026	2868	8317974	5 9452098	1706338	5 8605051	1 0144535	0142476	489	9857524
42	1684894	2867	8315106	5 9350922	1709331	5 8502410	1 0145039	0142965	491	9857035
43	1687761	2867	8312239	5 9250095	1712325	5 8400117	1 0145544	0143456	491	9856541
44	1690628	2867	8309372	5 9149612	1715320	5 8298172	1 0146050	0143947	492	9856053
45	1693495	2867	8306505	5 9049479	1718314	5 8196572	1 0146556	0144439	492	9855561
46	1696362	2866	8303638	5 8949688	1721309	5 8095315	1 0147064	0144932	493	9855068
47	1699228	2867	8300772	5 8850238	1724304	5 7994400	1 0147572	0145426	494	9854574
48	1702095	2866	8297905	5 8751128	1727300	5 7893825	1 0148082	0145921	495	9854079
49	1704961	2867	8295039	5 8652356	1730296	5 7793588	1 0148592	0146417	496	9853583
50	1707828	2866	8292172	5 8553921	1733292	5 7693688	1 0149103	0146913	496	9853087
51	1710694	2866	8289306	5 8455820	1736288	5 7594122	1 0149616	0147410	497	9852590
52	1713560	2865	8286440	5 8358053	1739285	5 7494889	1 0150129	0147908	498	9852092
53	1716425	2866	8283575	5 8260617	1742282	5 7395988	1 0150643	0148407	499	9851593
54	1719291	2865	8280709	5 8163510	1745279	5 7297416	1 0151158	0148907	500	9851093
55	1722156	2866	8277844	5 8066732	1748277	5 7199173	1 0151673	0149407	500	9850593
56	1725022	2865	8274978	5 7970280	1751275	5 7101256	1 0152190	0149909	502	9850091
57	1727887	2865	8272113	5 7874153	1754273	5 7003663	1 0152708	0150411	502	9849589
58	1730752	2865	8269248	5 7778350	1757272	5 6906394	1 0153226	0150914	503	9849086
59	1733617	2865	8266383	5 7682867	1760271	5 6809446	1 0153746	0151418	504	9848582
60	1736482	2865	8263518	5 7587705	1763270	5 6712818	1 0154266	0151922	504	9848078
	Cofine	Dif	Verf	Secant	Cotan.	Tang	Cofec	Coverf	D	Sine

9 Deg		LOG SINES, &c										(20 2)	
	Sine	Dif	Cotang	Verled	Lang	Dif	Cotang	Coverl	Secant	D	Cotang		
0	1943324	7969	10 8056676	8 0903166	9 1997125	8169	10 8002875	9 9261188	10 0053801	200	9 9940111	0	
1	1951293	7954	10 8048707	8 0919203	9 2005294	8155	10 7994706	9 9259709	10 0054101	201	9 9915941	1	
2	1957247	939	10 8040753	8 0935210	9 2013449	8139	10 7986551	9 9258229	10 0054402	202	9 9915714	2	
3	1961794	7924	10 8032814	8 0951188	9 2021588	8126	10 7978412	9 9256749	10 0054703	203	9 9915522	3	
4	1975140	7909	10 8024890	8 0967136	9 2029714	8111	10 7970286	9 9255268	10 0055004	204	9 9915316	4	
5	1983019	7894	10 8016981	8 0983055	9 2037845	8097	10 7962175	9 9253787	10 0055306	205	9 9915111	5	
6	1990913	7880	10 8009081	8 0998944	9 2045922	8082	10 7954078	9 9252306	10 0055605	206	9 9914904	6	
7	1998793	7865	10 8001207	8 1014804	9 2054004	8068	10 7945996	9 9250821	10 0055911	207	9 9914718	7	
8	2006658	7851	10 7993342	8 1030635	9 2062072	8054	10 7937928	9 9249341	10 0056213	208	9 9914538	8	
9	2014509	7836	10 7985491	8 1046437	9 2070126	8039	10 7929874	9 9247858	10 0056511	209	9 9914381	9	
10	2021345	7822	10 7977655	8 1062211	9 2078165	8026	10 7921835	9 9246375	10 0056810	210	9 9914218		
11	2030167	7807	10 7969833	8 1077955	9 2086191	8012	10 7913809	9 9244891	10 0057105	211	9 9914075		
12	2037974	7792	10 7962026	8 1093671	9 2094203	7997	10 7905797	9 9243407	10 0057402	212	9 9913921		
13	2045766	7779	10 7954234	8 1109358	9 2102200	7984	10 7897800	9 9241922	10 0057690	213	9 9913771		
14	2053545	7761	10 7946455	8 1125017	9 2110184	7969	10 7889816	9 9240437	10 0057978	214	9 9913611		
15	2061309	7750	10 7938631	8 1140647	9 2118153	7956	10 7881847	9 9238952	10 0058265	215	9 9913451		
16	2069059	7736	10 7930941	8 1156249	9 2126109	7942	10 7873891	9 9237466	10 0058552	216	9 9913291		
17	2076795	7721	10 7923205	8 1171823	9 2134051	7929	10 7865949	9 9235980	10 0058839	217	9 9913131		
18	2084516	7706	10 7915484	8 1187369	9 2141980	7914	10 7858020	9 9234493	10 0059125	218	9 9912971		
19	2092244	7693	10 7907776	8 1202887	9 2149894	7901	10 7850101	9 9233006	10 0059410	219	9 9912811		
20	2099917	7681	10 7900083	8 1218377	9 2157795	888	10 7842205	9 9231518	10 0059695	220	9 9912651		
21	2107597	7668	10 7892403	8 1233840	9 2165683	7873	10 7834317	9 9230030	10 0059978	221	9 9912491		
22	2115263	7651	10 7884737	8 1249274	9 2173556	7861	10 7826444	9 9228541	10 0060262	222	9 9912331		
23	2122914	7638	10 7877086	8 1264681	9 2181417	7847	10 7818583	9 9227052	10 0060545	223	9 9912171		
24	2130555	7624	10 7869448	8 1280061	9 2189261	7833	10 7810736	9 9225563	10 0060828	224	9 9912011		
25	2138176	7611	10 7861848	8 1295413	9 2197097	7820	10 7802903	9 9224073	10 0061110	225	9 9911851		
26	2145781	7599	10 7854213	8 1310738	9 2204917	807	10 7795083	9 9222583	10 0061392	226	9 9911691		
27	2153384	7583	10 7846616	8 1326036	9 2212724	7791	10 7787767	9 9221092	10 0061674	227	9 9911531		
28	2160967	7569	10 7839033	8 1341307	9 2220518	7778	10 7779482	9 9219601	10 0061955	228	9 9911371		
29	2168536	7556	10 7831461	8 1356551	9 2228298	7767	10 7771702	9 9218109	10 0062235	229	9 9911211		
30	2176092	7543	10 7823908	8 1371768	9 2236065	7754	10 7763993	9 9216617	10 0062515	230	9 9911051		
31	2183635	7529	10 7816365	8 1386958	9 2243819	7742	10 7756181	9 9215125	10 0062795	231	9 9910891		
32	2191164	7516	10 7808836	8 1402121	9 2251561	7728	10 7748439	9 9213632	10 0063074	232	9 9910731		
33	2198680	7502	10 7801320	8 1417258	9 2259289	7715	10 7740711	9 9212138	10 0063352	233	9 9910571		
34	2206182	7489	10 7793818	8 1432368	9 2267004	7702	10 7732996	9 9210644	10 0063629	234	9 9910411		
35	2213671	7476	10 7786329	8 1447452	9 2274706	7689	10 7725294	9 9209150	10 0063905	235	9 9910251		
36	2221147	7462	10 7778853	8 1462510	9 2282395	7676	10 7717605	9 9207656	10 0064180	236	9 9910091		
37	2228609	7450	10 7771391	8 1477541	9 2290071	7664	10 7709929	9 9206160	10 0064454	237	9 9909931		
38	2236059	7436	10 7763941	8 1492546	9 2297735	7651	10 7702265	9 9204665	10 0064727	238	9 9909771		
39	2243495	7423	10 7756505	8 1507525	9 2305386	7638	10 7694614	9 9203169	10 0065000	239	9 9909611		
40	2250918	7410	10 7749088	8 1522478	9 2313024	7626	10 7686976	9 9201672	10 0065272	240	9 9909451		
41	2258328	7397	10 7741672	8 1537405	9 2320650	7612	10 7679350	9 9200175	10 0065543	241	9 9909291		
42	2265725	7385	10 7734275	8 1552307	9 2328262	7601	10 7671738	9 9198678	10 0065813	242	9 9909131		
43	2273110	7371	10 7726890	8 1567182	9 2335863	7588	10 7664137	9 9197180	10 0066082	243	9 9908971		
44	2280481	7358	10 7719519	8 1582032	9 2343451	7575	10 7656549	9 9195682	10 0066350	244	9 9908811		
45	2287839	7346	10 7712161	8 1596857	9 2351026	7563	10 7648974	9 9194183	10 0066617	245	9 9908651		
46	2295185	7333	10 7704815	8 1611656	9 2358589	7550	10 7641411	9 9192684	10 0066883	246	9 9908491		
47	2302518	7320	10 7697482	8 1626430	9 2366139	7539	10 7633861	9 9191185	10 0067148	247	9 9908331		
48	2309838	7307	10 7690162	8 1641178	9 2373678	7525	10 7626322	9 9189685	10 0067412	248	9 9908171		
49	2317145	7295	10 7682855	8 1655902	9 2381203	7514	10 7618797	9 9188184	10 0067675	249	9 9908011		
50	2324440	728	10 7675560	8 1670600	9 2388717	7501	10 7611293	9 9186683	10 0067937	250	9 9907851		
51	2331722	7270	10 7668278	8 1685273	9 2396218	7490	10 7603782	9 9185182	10 0068198	251	9 9907691		
52	2338992	7257	10 7660908	8 1699921	9 2403708	7477	10 7596292	9 9183680	10 0068458	252	9 9907531		
53	2346249	7245	10 7653375	8 1714545	9 2411185	7465	10 7588813	9 9182178	10 0068717	253	9 9907371		
54	2353494	7232	10 7646506	8 1729144	9 2418650	7453	10 7581350	9 9180675	10 0068975	254	9 9907211		
55	2360726	7220	10 7639274	8 1743718	9 2426103	7440	10 7573897	9 9179172	10 0069232	255	9 9907051		
56	2367946	7207	10 7632054	8 1758267	9 2433543	7429	10 7566457	9 9177669	10 0069488	256	9 9906891		
57	2375153	7196	10 7624847	8 1772792	9 2440972	7417	10 7559028	9 9176165	10 0069743	257	9 9906731		
58	2382349	7183	10 7617651	8 1787292	9 2448389	7405	10 7551611	9 9174660	10 0069997	258	9 9906571		
59	2389532	7170	10 7610468	8 1801768	9 2455794	7394	10 7544206	9 9173155	10 0070250	259	9 9906411		
60	2396700	7157	10 7603298	8 1816220	9 2463188		10 7536812	9 9171650	10 0070502	260	9 9906251		
Cotang	Dif	Secant	Coverl	Cotang	Dif	Lang	Verled	Cotang	D	Sine			

10 Dég.		NATURAL SINES, &c								Tab 10	
7	Sine	Dit	Coverf	Cofec.	Tang.	Cotang	Secant	Verf	D.	Cofine	
0	1736482	2864	8263518	5 7587705	1763270	5 6712818	1 0154266	0151922	506	9848078	60
1	1739346	2865	8260654	5 7492861	1766269	5 6616509	1 0154787	0152428	506	9847572	59
2	1742211	2864	8257789	5 7398333	1769269	5 6520516	1 0155310	0152934	508	9847066	58
3	1745075	2864	8254925	5 7304121	1772269	5 6424838	1 0155833	0153442	508	9846558	57
4	1747939	2864	8252061	5 7210223	1775270	5 6329474	1 0156357	0153950	508	9846050	56
5	1750803	2864	8249197	5 7116636	1778270	5 6234421	1 0156882	0154458	508	9845542	55
6	1753667	2864	8246333	5 7023360	1781271	5 6139680	1 0157408	0154966	510	9845032	54
7	1756531	2864	8243469	5 6930393	1784273	5 6045247	1 0157934	0155479	511	9844521	53
8	1759395	2863	8240605	5 6837734	1787274	5 5951121	1 0158462	0155990	512	9844010	52
9	1762258	2863	8237744	5 6745380	1790276	5 5857302	1 0158991	0156502	513	9843498	51
10	1765121	2863	8234879	5 6653331	1793279	5 5763786	1 0159520	0157015	514	9842985	50
11	1767984	2863	8232016	5 6561584	1796281	5 5670574	1 0160050	0157529	515	9842471	49
12	1770847	2863	8229153	5 6470140	1799284	5 5577663	1 0160582	0158044	515	9841956	48
13	1773710	2863	8226290	5 6378995	1802287	5 5485052	1 0161114	0158559	517	9841441	47
14	1776573	2863	8223427	5 6288148	1805291	5 5392740	1 0161647	0159076	517	9840924	46
15	1779435	2863	8220565	5 6197599	1808295	5 5300724	1 0162181	0159593	518	9840407	45
16	1782298	2863	8217702	5 6107345	1811299	5 5209005	1 0162716	0160111	519	9839889	44
17	1785160	2862	8214840	5 6017386	1814303	5 5117579	1 0163252	0160630	520	9839370	43
18	1788022	2862	8211978	5 5927719	1817308	5 5026446	1 0163789	0161150	520	9838850	42
19	1790884	2862	8209116	5 5838343	1820313	5 4935604	1 0164327	0161670	522	9838330	41
20	1793746	2861	8206254	5 5749258	1823319	5 4845054	1 0164865	0162192	522	9837808	40
21	1796607	2862	8203393	5 5660460	1826324	5 4754788	1 0165405	0162714	523	9837286	39
22	1799469	2861	8200531	5 5571951	1829330	5 4664812	1 0165946	0163237	524	9836763	38
23	1802330	2861	8197670	5 5483726	1832337	5 4575121	1 0166487	0163761	524	9836239	37
24	1805191	2861	8194809	5 5395786	1835343	5 4485715	1 0167029	0164285	526	9835715	36
25	1808052	2861	8191948	5 5308129	1838350	5 4396592	1 0167573	0164811	526	9835189	35
26	1810913	2861	8189087	5 5220754	1841358	5 4307750	1 0168117	0165337	527	9834663	34
27	1813774	2861	8186226	5 5133659	1844365	5 4219188	1 0168662	0165864	528	9834136	33
28	1816635	2860	8183365	5 5046843	1847373	5 4130906	1 0169208	0166392	529	9833608	32
29	1819495	2860	8180505	5 4960305	1850382	5 4042901	1 0169755	0166921	530	9833079	31
30	1822355	2860	8177645	5 4874043	1853390	5 3955172	1 0170303	0167451	530	9832549	30
31	1825215	2860	8174785	5 4788056	1856399	5 3867718	1 0170851	0167981	532	9832019	29
32	1828075	2860	8171925	5 4702342	1859409	5 3780538	1 0171401	0168513	532	9831487	28
33	1830935	2860	8169065	5 4616901	1862418	5 3693630	1 0171952	0169045	533	9830955	27
34	1833795	2859	8166205	5 4531731	1865428	5 3606993	1 0172503	0169578	533	9830422	26
35	1836654	2859	8163346	5 4446831	1868439	5 3520626	1 0173056	0170112	534	9829888	25
36	1839514	2859	8160486	5 4362199	1871449	5 3434527	1 0173609	0170647	535	9829353	24
37	1842373	2859	8157627	5 4277835	1874460	5 3348696	1 0174163	0171182	535	9828818	23
38	1845232	2859	8154768	5 4193737	1877471	5 3263131	1 0174719	0171718	536	9828282	22
39	1848091	2858	8151909	5 4109903	1880483	5 3177830	1 0175275	0172256	538	9827744	21
40	1850949	2858	8149051	5 4026333	1883495	5 3092793	1 0175832	0172794	538	9827206	20
41	1853808	2858	8146192	5 3943026	1886507	5 3008018	1 0176390	0173332	538	9826668	19
42	1856666	2858	8143334	5 3859979	1889520	5 2923505	1 0176949	0173872	540	9826128	18
43	1859524	2858	8140476	5 3777192	1892533	5 2839251	1 0177509	0174413	541	9825587	17
44	1862382	2858	8137618	5 3694664	1895546	5 2755555	1 0178069	0174954	542	9825046	16
45	1865240	2858	8134760	5 3612393	1898559	5 2671517	1 0178631	0175496	543	9824504	15
46	1868098	2858	8131902	5 3530379	1901573	5 2588035	1 0179194	0176039	544	9823961	14
47	1870956	2857	8129044	5 3448620	1904587	5 2504809	1 0179757	0176583	544	9823417	13
48	1873813	2857	8126187	5 3367114	1907602	5 2421836	1 0180321	0177127	546	9822873	12
49	1876670	2858	8123330	5 3285861	1910617	5 2339116	1 0180887	0177673	546	9822327	11
50	1879528	2857	8120472	5 3204860	1913632	5 2256647	1 0181453	0178219	547	9821781	10
51	1882385	2856	8117615	5 3124109	1916648	5 2174428	1 0182020	0178766	548	9821234	9
52	1885241	2856	8114759	5 3043608	1919664	5 2092459	1 0182588	0179314	549	9820686	8
53	1888098	2856	8111902	5 2963354	1922680	5 2010738	1 0183158	0179863	549	9820137	7
54	1890954	2857	8109046	5 2883347	1925696	5 1929264	1 0183728	0180413	550	9819587	6
55	1893811	2856	8106189	5 2803587	1928713	5 1848035	1 0184298	0180963	550	9819037	5
56	1896667	2856	8103333	5 2724070	1931731	5 1767051	1 0184870	0181515	552	9818485	4
57	1899523	2856	8100477	5 2644798	1934748	5 1686311	1 0185443	0182067	553	9817933	3
58	1902379	2855	8097621	5 2565768	1937766	5 1605813	1 0186017	0182620	554	9817380	2
59	1905234	2855	8094766	5 2486979	1940784	5 1525557	1 0186591	0183174	554	9816826	1
60	1908090	2856	8091910	5 2408431	1943803	5 1445540	1 0187167	0183728	554	9816272	0
	Cofine	Dif.	Verf.	Secant	Cotan.	Tang	Cofec	Coverf.	D	Sine	7

To Deg.		Loc SINES, &c										(269)	
Sine	Dif	Cofec	Verfedf	Tang	Dif	Cotang	Coverf	Secant	D	Cofine	Sine		
0	239670	7159	107603	81816220	92463188	7381	107516812	99171650	100066485	223	99933515		
1	2403861	7146	107596139	81830648	92470569	7370	107529431	99170144	100066708	224	99933292		
2	2411007	7134	107588993	81845051	92477939	7358	107542061	99168638	10006693	225	99933068		
3	2418141	7123	107581859	81859431	92485297	7346	107554703	99167131	100067155	226	99932845		
4	2425264	7110	107574736	81873786	92492643	7335	10756735	99165624	100067379	227	99932621		
5	2432374	7098	107567626	81888118	92499978	7323	107580022	99164117	100067604	228	99932397		
6	2439472	7086	107560528	81902426	92507301	7311	107592699	99162609	100067829	229	99932173		
7	2446558	7074	107553442	81916710	92514612	7300	107605388	99161100	100068054	230	99931949		
8	2453632	7063	107546368	81930971	92521918	7288	107618088	99159591	100068280	231	99931725		
9	2460695	7051	107539305	81945208	92529200	7277	107630800	99158082	100068506	232	99931501		
10	2467746	7038	107532254	81959421	92536477	7265	107643523	99156572	100068732	233	99931277		
11	2474784	7027	10752516	81973611	92543743	7254	107656257	99155062	100068959	234	99931053		
12	2481811	7016	107518189	81987778	92550999	7243	107669003	99153551	100069186	235	99930829		
13	2488827	7003	107511173	82001921	9255821	7232	107681760	99152040	100069413	236	99930605		
14	2495830	6992	107504170	82016042	92565472	7220	107694528	99150528	100069641	237	99930381		
15	2502822	6981	107497178	82030139	92572692	7209	107707308	99149016	100069869	238	99930157		
16	2509803	6969	107490197	8204413	92579901	7198	107720099	99147504	100070098	239	99929933		
17	2516772	6957	107483228	82058264	92587099	7186	107732901	99145991	100070327	240	99929709		
18	2523729	6946	107476271	82072393	92594285	7176	107745715	99144478	100070556	241	99929485		
19	2530675	6934	107469325	82086498	92601461	7164	107758539	99142964	100070786	242	99929261		
20	2537609	6923	107462391	82100581	92608625	7154	107771375	99141450	100071016	243	99929037		
21	2544532	6911	107455468	82114621	92615779	7142	10778421	99139935	100071247	244	99928813		
22	2551444	6900	107448556	82128719	92622921	7132	107797079	99138420	100071478	245	99928589		
23	2558344	6889	107441656	82142794	92630053	7120	107809947	99136904	100071709	246	99928365		
24	2565233	6877	107434767	8215687	92637173	7110	107822827	99135388	100071941	247	99928141		
25	2572110	6867	107427890	82169857	92644283	7099	107835717	99133872	100072173	248	99927917		
26	2578977	6855	107421023	8218305	9265138	7088	107848618	99132355	100072405	249	99927693		
27	2585833	6844	107414168	82197531	92658470	7077	107861450	99130837	100072638	250	99927469		
28	2592676	6833	107407324	82211334	92665547	7066	107874282	99129319	100072871	251	99927245		
29	2599509	6821	107400491	82225116	92672613	7056	107887114	99127801	100073105	252	99927021		
30	2606330	6811	107393670	82238875	92679669	7045	107900000	99126282	100073339	253	99926797		
31	2613141	6800	107386859	82252613	92686714	7035	107912886	99124763	100073573	254	99926573		
32	2619941	6788	107380059	82266329	92693749	7023	107925771	99123244	100073808	255	99926349		
33	2626729	6778	107373271	8228003	92700772	7014	107938657	99121723	100074043	256	99926125		
34	2633507	6767	107366493	82293695	92707786	7002	107951542	99120203	100074278	257	99925901		
35	2640271	6756	107359726	82307345	92714788	6992	107964428	99118682	100074514	258	99925677		
36	2647030	6745	107352970	82320974	92721780	6982	107977314	99117161	100074750	259	99925453		
37	2653775	6734	10734625	82334581	92728762	6971	107990200	99115639	100074987	260	99925229		
38	2660509	6723	107339491	82348167	92735733	6961	108003086	99114116	100075224	261	99925005		
39	2667232	6713	107332768	82361732	92742694	6950	108015971	99112593	100075461	262	99924781		
40	2673945	6702	107326055	82375275	92749644	6940	108028857	99111070	100075699	263	99924557		
41	2680647	6691	107319353	82388797	92756584	6930	108041742	99109547	100075937	264	99924333		
42	2687338	6681	107312662	82402297	92763514	6920	108054628	99108022	100076176	265	99924109		
43	2694019	6670	107305981	82415777	92770434	6909	108067514	99106498	100076415	266	99923885		
44	2700689	6659	107299311	82429235	92777343	6899	108080400	99104973	100076654	267	99923661		
45	2707348	6649	107292652	82442673	92784242	6889	108093286	99103447	100076894	268	99923437		
46	2713997	6638	107286003	82456089	92791131	6878	108106171	99101921	100077134	269	99923213		
47	2720635	6628	107279365	82469485	92798009	6869	108119057	99100395	100077374	270	99922989		
48	2727263	6617	107272737	82482860	92804878	6858	108131942	99098868	100077615	271	99922765		
49	2733880	6607	107266120	82496214	92811736	6849	108144828	99097341	100077856	272	99922541		
50	2740487	6596	107259513	82509547	92818585	6838	108157714	99095813	100078097	273	99922317		
51	2747083	6586	107252917	82522860	92825423	6828	108170600	99094285	100078340	274	99922093		
52	2753669	6576	107246331	8253615	92832251	6819	108183486	99092756	100078582	275	99921869		
53	2760245	6566	107239755	82549424	92839070	6808	108196371	99091227	100078825	276	99921645		
54	2766811	6555	107233189	82562675	92845878	6799	108209257	99089699	100079068	277	99921421		
55	2773366	6545	107226634	82575906	92852677	6789	108222142	99088169	100079311	278	99921197		
56	2779911	6534	107220089	82589111	92859466	6779	108235028	99086637	100079555	279	99920973		
57	2786445	6525	107213555	82602301	92866245	6769	108247914	99085106	100079799	280	99920749		
58	2792970	6514	107207030	82615477	92873014	6759	108260800	99083575	100080044	281	99920525		
59	2799484	6504	107200516	82628627	92879778	6750	108273686	99082043	100080289	282	99920301		
60	2805988		107194012	82641757	92886523		108286571	99080510	100080534	283	99920077		
Cofine	Dif	Secant	Coverf	Cotang	Dif	Tang	Verfedf	Cofec	D	Sine			

11 Deg		NATURAL SINES, &c								Tab. 10	
	Sine	Dif	Coverf	Cofec	Lang	Cotang.	Secant	Verf.	D	Cofine	
0	1908090		8091910	5 2408431	1943803	5 1445540	1 0187167	0183728		9816272	60
1	1910945	2855	8089055	5 2530121	1946822	5 1365763	1 0187743	0184284	556	9815716	59
2	1913801	356	8086199	5 2252050	1949841	5 1286224	1 0188321	0184840	556	9815160	58
3	1916656	2855	8083344	5 2174216	1952861	5 1206921	1 0188899	0185397	557	9814603	57
4	1919510	2854	8080490	5 2096618	1955881	5 1127855	1 0189478	0185955	558	9814045	56
5	1922365	2855	8077635	5 2019254	1958901	5 1049024	1 0190059	0186514	559	9813486	55
6	1925220	2855	8074780	5 1942125	1961922	5 0970426	1 0190640	0187073	559	9812927	54
7	1928074	2854	8071926	5 1865228	1964943	5 0892061	1 0191222	0187634	561	9812366	53
8	1930928	2854	8069072	5 1788563	1967964	5 0813928	1 0191805	0188195	562	9811805	52
9	1933782	2854	8066218	5 1712128	1970986	5 0736025	1 0192389	0188757	562	9811243	51
10	1936636	2854	8063364	5 1635924	1974008	5 0658352	1 0192973	0189320	563	9810680	50
11	1939490	2854	8060510	5 1559948	1977031	5 0580907	1 0193559	0189884	564	9810116	49
12	1942344	2854	8057656	5 1484199	1980053	5 0503690	1 0194146	0190448	564	9809552	48
13	1945197	2853	8054803	5 1408677	1983076	5 0426700	1 0194734	0191014	566	9808986	47
14	1948050	2853	8051950	5 1333381	1986100	5 0349935	1 0195322	0191580	566	9808420	46
15	1950903	2853	8049097	5 1258309	1989124	5 0273395	1 0195912	0192147	567	9807853	45
16	1953756	2853	8046244	5 1183461	1992148	5 0197078	1 0196502	0192715	568	9807285	44
17	1956609	2853	8043391	5 1108835	1995172	5 0120984	1 0197093	0193284	569	9806716	43
18	1959461	2852	8040539	5 1034431	1998197	5 0045111	1 0197686	0193853	569	9806147	42
19	1962314	2853	8037686	5 0960248	2001222	4 9969459	1 0198279	0194424	571	9805576	41
20	1965166	2852	8034834	5 0886284	2004248	4 9894027	1 0198873	0194995	571	9805005	40
21	1968018	2852	8031982	5 0812539	2007274	4 9818813	1 0199468	0195567	572	9804433	39
22	1970870	2852	8029130	5 0739012	2010300	4 9743817	1 0200064	0196140	573	9803860	38
23	1973722	2851	8026278	5 0665701	2013327	4 9669037	1 0200661	0196714	574	9803286	37
24	1976573	2851	8023427	5 0592606	2016354	4 9594474	1 0201259	0197288	574	9802712	36
25	1979425	2852	8020575	5 0519726	2019381	4 9520125	1 0201858	0197864	576	9802136	35
26	1982276	2851	8017724	5 0447060	2022409	4 9445990	1 0202457	0198440	576	9801560	34
27	1985127	2851	8014873	5 0374607	2025437	4 9372068	1 0203058	0199017	577	9800983	33
28	1987978	2851	8012022	5 0302367	2028465	4 9298358	1 0203660	0199595	578	9800405	32
29	1990829	2851	8009171	5 0230337	2031494	4 9224859	1 0204262	0200173	578	9799827	31
30	1993679	2850	8006321	5 0158517	2034523	4 9151570	1 0204866	0200753	580	9799247	30
31	1996530	2851	8003470	5 0086907	2037552	4 9078491	1 0205470	0201333	581	9798667	29
32	1999380	2850	8000620	5 0015505	2040582	4 9005620	1 0206075	0201914	582	9798086	28
33	2002230	2850	7997770	4 9944311	2043612	4 8932956	1 0206682	0202496	583	9797504	27
34	2005080	2850	7994920	4 9873323	2046643	4 8860499	1 0207289	0203079	584	9796921	26
35	2007930	2850	7992070	4 9802541	2049674	4 8788248	1 0207897	0203663	584	9796337	25
36	2010779	2849	7989221	4 9731964	2052705	4 8716201	1 0208506	0204248	585	9795755	24
37	2013629	2850	7986371	4 9661591	2055737	4 8644359	1 0209116	0204833	586	9795167	23
38	2016478	2849	7983522	4 9591421	2058769	4 8572719	1 0209727	0205419	587	9794581	22
39	2019327	2849	7980673	4 9521453	2061801	4 8501282	1 0210339	0206006	588	9793994	21
40	2022176	2849	7977824	4 9451687	2064834	4 8430045	1 0210952	0206594	588	9793406	20
41	2025024	2848	7974976	4 9382120	2067867	4 8359010	1 0211566	0207182	588	9792818	19
42	2027873	2849	7972127	4 9312754	2070900	4 8288174	1 0212180	0207772	590	9792228	18
43	2030721	2848	7969279	4 9243586	2073934	4 8217536	1 0212796	0208362	591	9791638	17
44	2033569	2848	7966431	4 9174616	2076968	4 8147096	1 0213413	0208953	592	9791047	16
45	2036418	2849	7963582	4 9105844	2080003	4 8076854	1 0214030	0209545	593	9790455	15
46	2039266	2847	7960735	4 9037267	2083038	4 8006808	1 0214649	0210138	594	9789862	14
47	2042113	2848	7957887	4 8968886	2086073	4 7936957	1 0215268	0210732	594	9789268	13
48	2044961	2848	7955039	4 8900700	2089109	4 7867300	1 0215888	0211326	594	9788674	12
49	2047808	2847	7952192	4 8832707	2092145	4 7797837	1 0216510	0211921	595	9788079	11
50	2050655	2847	7949345	4 8764907	2095181	4 7728568	1 0217132	0212517	596	9787483	10
51	2053502	2847	7946498	4 8697299	2098218	4 7659490	1 0217755	0213114	597	9786886	9
52	2056349	2847	7943651	4 8629883	2101255	4 7590603	1 0218379	0213712	598	9786288	8
53	2059195	2846	7940805	4 8562657	2104293	4 7521907	1 0219004	0214311	599	9785689	7
54	2062042	2847	7937958	4 8495621	2107331	4 7453401	1 0219630	0214910	599	9785090	6
55	2064888	2846	7935112	4 8428774	2110369	4 7385083	1 0220257	0215510	601	9784490	5
56	2067734	2846	7932266	4 8362114	2113407	4 7316954	1 0220885	0216111	602	9783889	4
57	2070580	2846	7929420	4 8295643	2116446	4 7249012	1 0221514	0216713	603	9783287	3
58	2073426	2846	7926574	4 8229357	2119486	4 7181256	1 0222144	0217316	604	9782684	2
59	2076272	2846	7923728	4 8163258	2122525	4 7113686	1 0222774	0217920	604	9782080	1
60	2079117	2845	7920883	4 8097343	2125566	4 7046301	1 0223406	0218524	604	9781476	0
	Cofine	Dif.	Verf	Secant	Cotan	Tang	Cofec	Coverf	D	Sine	

11 Deg		LOG SINES, &c										(271)
7	Sine	Diff	Coſec	Verſedſ	Lang	Diff	Cotang	Coverſ	Secant	D	Coſine	7
0	92805958	6493	107194012	82641757	92886523	04	107113177	92080511	100080534		99919100	60
1	92812483	6483	107187517	82654860	92893267	04	10710613	92070978	100080780	46	99919052	59
2	92818967	6473	107181033	82667955	92900093	04	10710000	92077145	100081026	46	99918971	58
3	92825441	6464	107174550	82681028	92906713	04	10709386	92075911	100081273	44	99918917	57
4	92831905	6454	107168065	82694078	92913311	04	107087571	92074371	100081520	44	99918840	56
5	92838359	6445	107161611	82707109	92920126	04	107081274	92072812	100081767	44	99918753	55
6	92844803	6435	107155197	82720119	9292681	04	1070750183	92071307	100082014	44	99918656	54
7	92851237	6425	107148763	82733111	92933500	04	1070687510	92069777	100082263	44	99918559	53
8	92857661	6415	107142339	82746082	92940172	04	107062598	92068236	100082511	44	99918462	52
9	92864076	6405	107135924	82759035	92946836	04	107056316	92066699	100082760	44	99918365	51
10	92870480	6395	107129508	82771967	92953489	04	107050111	92065163	100083009	44	99918268	50
11	92876875	6385	107123105	82784880	92960134	04	107043906	92063625	100083257	44	99918171	49
12	92883260	6375	107116710	82797774	92966769	04	107037701	92062087	100083508	44	99918074	48
13	92889636	6365	107110361	82810649	92973395	04	107031505	92060549	100083759	44	99917977	47
14	92896001	6355	107104013	82823504	92980011	04	107025309	92059011	100084011	44	99917880	46
15	92902357	6345	107097664	82836341	92986618	04	107019113	92057471	100084263	44	99917783	45
16	92908701	6335	107091315	82849158	92993211	04	107012917	92055933	100084515	44	99917686	44
17	92915040	6325	107084966	82861956	92999801	04	107006721	92054393	100084767	44	99917589	43
18	92921377	6315	107078617	82874735	93006381	04	107000525	92052851	100085019	44	99917492	42
19	92927715	6305	107072268	82887495	93012951	04	106994329	92051309	100085271	44	99917395	41
20	92934053	6295	107065919	82899234	93019511	04	106988133	92049767	100085523	44	99917298	40
21	92940391	6285	107059570	82911953	93026071	04	106981937	92048227	100085775	44	99917201	39
22	92946729	6275	107053221	82924652	93032631	04	106975741	92046687	100086027	44	99917104	38
23	92953067	6265	107046872	82937341	93039191	04	106969545	92045147	100086279	44	99917007	37
24	92959405	6255	107040523	82950020	93045751	04	106963349	92043607	100086531	44	99916910	36
25	92965743	6245	107034174	82962699	93052311	04	106957153	92042067	100086783	44	99916813	35
26	92972081	6235	107027825	82975378	93058871	04	106950957	92040527	100087035	44	99916716	34
27	92978419	6225	107021476	82988057	93065431	04	106944761	92038987	100087287	44	99916619	33
28	92984757	6215	107015127	82999736	93071991	04	106938565	92037447	100087539	44	99916522	32
29	92991095	6205	107008778	83012415	93078551	04	106932369	92035907	100087791	44	99916425	31
30	92997433	6195	107002429	83024934	93085111	04	106926173	92034367	100088043	44	99916328	30
31	93003771	6185	106996080	83037453	93091671	04	106919977	92032827	100088295	44	99916231	29
32	93010109	6175	106989731	83050012	93098231	04	106913781	92031287	100088547	44	99916134	28
33	93016447	6165	106983382	83062531	93104791	04	106907585	92029747	100088799	44	99916037	27
34	93022785	6155	106977033	83075050	93111351	04	106901389	92028207	100089051	44	99915940	26
35	93029123	6145	106970684	83087569	93117911	04	106895193	92026667	100089303	44	99915843	25
36	93035461	6135	106964335	83100088	93124471	04	106888997	92025127	100089555	44	99915746	24
37	93041799	6125	106957986	83112607	93131031	04	106882801	92023587	100089807	44	99915649	23
38	93048137	6115	106951637	83125126	93137591	04	106876605	92022047	100090059	44	99915552	22
39	93054475	6105	106945288	83137645	93144151	04	106870409	92020507	100090311	44	99915455	21
40	93060813	6095	106938939	83150164	93150711	04	106864213	92018967	100090563	44	99915358	20
41	93067151	6085	106932590	83162683	93157271	04	106858017	92017427	100090815	44	99915261	19
42	93073489	6075	106926241	83175202	93163831	04	106851821	92015887	100091067	44	99915164	18
43	93079827	6065	106919892	83187721	93170391	04	106845625	92014347	100091319	44	99915067	17
44	93086165	6055	106913543	83200240	93176951	04	106839429	92012807	100091571	44	99914970	16
45	93092503	6045	106907194	83212759	93183511	04	106833233	92011267	100091823	44	99914873	15
46	93098841	6035	106900845	83225278	93190071	04	106827037	92009727	100092075	44	99914776	14
47	93105179	6025	106894496	83237797	93196631	04	106820841	92008187	100092327	44	99914679	13
48	93111517	6015	106888147	83250316	93203191	04	106814645	92006647	100092579	44	99914582	12
49	93117855	6005	106881798	83262835	93209751	04	106808449	92005107	100092831	44	99914485	11
50	93124193	5995	106875449	83275354	93216311	04	106802253	92003567	100093083	44	99914388	10
51	93130531	5985	106869100	83287873	93222871	04	106796057	92002027	100093335	44	99914291	9
52	93136869	5975	106862751	83300392	93229431	04	106789861	92000487	100093587	44	99914194	8
53	93143207	5965	106856402	83312911	93235991	04	106783665	91998947	100093839	44	99914097	7
54	93149545	5955	106850053	83325430	93242551	04	106777469	91997407	100094091	44	99914000	6
55	93155883	5945	106843704	83337949	93249111	04	106771273	91995867	100094343	44	99913903	5
56	93162221	5935	106837355	83350468	93255671	04	106765077	91994327	100094595	44	99913806	4
57	93168559	5925	106831006	83362987	93262231	04	106758881	91992787	100094847	44	99913709	3
58	93174897	5915	106824657	83375506	93268791	04	106752685	91991247	100095099	44	99913612	2
59	93181235	5905	106818308	83388025	93275351	04	106746489	91989707	100095351	44	99913515	1
60	93187573	5895	106811959	83400544	93281911	04	106740293	91988167	100095603	44	99913418	0

12 Deg		NATURAL SINES, &c.										Tab. 10	
	Sine	Dif	Coverf	Cofec	Tang.	Cotang.	Secant	Verf	D	Cofine			
0	2079117	2845	7920883	4 8097343	2125566	4 7046301	1 0223406	0218524	605	9781476	60		
1	2081962	2845	7918038	4 8031613	2128606	4 6979100	1 0224039	0219129	606	9780871	59		
2	2084807	2845	7915193	4 7966066	2131647	4 6912083	1 0224672	0219735	607	9780265	58		
3	2087652	2845	7912348	4 7900702	2134688	4 6845248	1 0225307	0220342	608	9779658	57		
4	2090497	2845	7909503	4 7835520	2137730	4 6778595	1 0225942	0220950	608	9779050	56		
5	2093341	2844	7906659	4 7770519	2140772	4 6712124	1 0226578	0221558	610	9778442	55		
6	2096186	2844	7903814	4 7705699	2143814	4 6645832	1 0227216	0222166	610	9777832	54		
7	2099030	2844	7900970	4 7641058	2146857	4 6579721	1 0227854	0222778	611	9777222	53		
8	2101874	2844	7898126	4 7576596	2149900	4 6513788	1 0228493	0223389	612	9776611	52		
9	2104718	2844	7895282	4 7512312	2152944	4 6448034	1 0229133	0224001	612	9775999	51		
10	2107561	2843	7892439	4 7448206	2155988	4 6382457	1 0229774	0224613	612	9775387	50		
11	2110405	2844	7889595	4 7384277	2159032	4 6317056	1 0230416	0225227	614	9774773	49		
12	2113248	2843	7886752	4 7320524	2162077	4 6251832	1 0231059	0225841	615	9774159	48		
13	2116091	2843	7883909	4 7256945	2165122	4 6186783	1 0231703	0226456	616	9773544	47		
14	2118934	2843	7881066	4 7193542	2168167	4 6121908	1 0232348	0227071	617	9772928	46		
15	2121777	2842	7878223	4 7130313	2171213	4 6057207	1 0232994	0227689	618	9772311	45		
16	2124619	2842	7875381	4 7067256	2174259	4 5992680	1 0233641	0228307	618	9771693	44		
17	2127462	2842	7872538	4 7004372	2177306	4 5928325	1 0234288	0228925	619	9771075	43		
18	2130304	2842	7869696	4 6941660	2180353	4 5864141	1 0234937	0229544	620	9770456	42		
19	2133146	2842	7866854	4 6879119	2183400	4 5800129	1 0235587	0230164	621	9769836	41		
20	2135988	2841	7864012	4 6816748	2186448	4 573687	1 0236237	0230785	622	9769215	40		
21	2138829	2842	7861171	4 6754548	2189496	4 5672615	1 0236889	0231407	623	9768593	39		
22	2141671	2841	7858329	4 6692516	2192544	4 5609111	1 0237541	0232030	623	9767970	38		
23	2144512	2841	7855488	4 6630652	2195593	4 5545776	1 0238193	0232653	624	9767347	37		
24	2147353	2841	7852647	4 6568956	2198643	4 5482608	1 0238849	0233277	625	9766723	36		
25	2150194	2841	7849806	4 6507427	2201692	4 5419608	1 0239504	0233902	626	9766098	35		
26	2153035	2841	7846965	4 6446064	2204742	4 5356773	1 0240161	0234528	627	9765472	34		
27	2155876	2840	7844124	4 6384867	2207793	4 5294105	1 0240818	0235155	627	9764845	33		
28	2158716	2840	7841284	4 6323835	2210844	4 5231601	1 0241476	0235782	629	9764215	32		
29	2161556	2840	7838444	4 6262967	2213895	4 5169261	1 0242135	0236411	629	9763589	31		
30	2164396	2840	7835604	4 6202263	2216947	4 5107085	1 0242795	0237040	630	9762960	30		
31	2167236	2840	7832764	4 6141722	2219999	4 5045072	1 0243456	0237670	631	9762330	29		
32	2170076	2839	7829924	4 6081343	2223051	4 4983221	1 0244118	0238301	631	9761699	28		
33	2172915	2839	7827085	4 6021126	2226104	4 4921532	1 0244781	0238932	633	9761068	27		
34	2175754	2839	7824246	4 5961070	2229157	4 4860004	1 0245445	0239565	633	9760435	26		
35	2178593	2839	7821407	4 5901174	2232211	4 4798636	1 0246110	0240198	631	9759802	25		
36	2181432	2839	7818568	4 5841439	2235265	4 4737428	1 0246776	0240832	635	9759168	24		
37	2184271	2839	7815729	4 5781862	2238319	4 4676379	1 0247442	0241467	636	9758533	23		
38	2187110	2838	7812890	4 5722444	2241374	4 4615489	1 0248110	0242103	637	9757897	22		
39	2189948	2838	7810052	4 5663183	2244429	4 4554756	1 0248779	0242740	637	9757260	21		
40	2192786	2838	7807214	4 5604080	2247485	4 4494181	1 0249448	0243377	638	9756623	20		
41	2195624	2838	7804376	4 5545134	2250541	4 4433762	1 0250119	0244015	640	9755985	19		
42	2198462	2838	7801538	4 5486344	2253597	4 4373500	1 0250790	0244655	639	9755345	18		
43	2201300	2837	7798700	4 5427709	2256654	4 4313392	1 0251463	0245294	641	9754706	17		
44	2204137	2837	7795863	4 5369229	2259711	4 4253439	1 0252136	0245935	642	9754065	16		
45	2206974	2837	7793026	4 5310903	2262769	4 4193641	1 0252811	0246577	642	9753423	15		
46	2209811	2837	7790180	4 5252730	2265827	4 4133996	1 0253486	0247219	643	9752781	14		
47	2212648	2837	7787352	4 5194711	2268885	4 4074504	1 0254162	0247862	643	9752138	13		
48	2215485	2836	7784515	4 5136844	2271944	4 4015164	1 0254839	0248506	645	9751494	12		
49	2218321	2837	7781679	4 5079129	2275003	4 3955977	1 0255518	0249151	646	9750849	11		
50	2221158	2836	7778842	4 5021565	2278063	4 3896940	1 0256197	0249797	647	9750203	10		
51	2223994	2836	7776006	4 4964152	2281123	4 3838054	1 0256877	0250444	647	9749556	9		
52	2226830	2836	7773170	4 4906889	2284184	4 3779317	1 0257558	0251091	648	9748909	8		
53	2229666	2835	7770334	4 4849775	2287244	4 3720731	1 0258240	0251739	649	9748261	7		
54	2232501	2836	7767499	4 4792810	2290306	4 3662293	1 0258923	0252388	650	9747612	6		
55	2235337	2835	7764663	4 4735993	2293367	4 3604003	1 0259607	0253038	651	9746962	5		
56	2238172	2835	7761828	4 4679324	2296429	4 3545861	1 0260292	0253689	651	9746311	4		
57	2241007	2835	7758993	4 4622803	2299492	4 3487866	1 0260978	0254340	652	9745660	3		
58	2243842	2834	7756158	4 4566428	2302555	4 3430018	1 0261665	0254992	653	9745008	2		
59	2246676	2835	7753324	4 4510198	2305618	4 3372316	1 0262352	0255645	654	9744355	1		
60	2249511	2835	7750489	4 4454115	2308682	4 3314759	1 0263041	0256299	654	9743701	0		
	Cofine	Dif.	Verf	Secant	Cotan.	Tang	Cofec	Coverf	D.	Sine			

12 Deg		Log Sines, &c										(273)	
	Sine	Diff	Cofec	Verfcdl	Lang	Diff	Cotang	Coverf	Secant	D	Cofine		
0	93178789	5939	106821211	83394991	93271745	608	10672555	98987736	100095956	269	99904044	60	
1	93184728	5931	10681572	8340700	93280953	6200	106719047	98986176	100096225	269	9990375	51	
2	93190659	5922	106809341	83418997	9328153	619	10671847	98984615	100096494	269	9990350	52	
3	93196581	5911	106803419	83430975	93293345	6183	106706055	98983054	100096763	269	99903237	57	
4	93202495	5905	106797505	83442936	9330958	6176	10670047	98981492	100097033	270	99902967	56	
5	93208402	5897	106791600	83454880	93305704	6168	106694296	98979930	100097303	271	9990269	55	
6	93214207	5889	10678503	83466808	93311872	6159	106688125	9897836	100097571	271	99902426	54	
7	93220186	5880	106779214	83478719	93318031	6152	106681969	98976804	100097845	271	99902155	53	
8	93226066	5872	106773074	83490611	93324183	6141	106675817	98975241	100098111	271	99901883	52	
9	93231937	5864	106766806	83502492	93330307	6136	106669673	9897367	100098383	271	99901612	51	
10	9323780	5855	106760518	83514354	93336463	6128	106663537	98972112	100098661	272	99901339	50	
11	93243657	5848	106754213	83526200	93342591	6120	106657409	98970551	100098933	272	9990106	49	
12	93249505	5839	106750195	8353809	93348711	6112	106651280	9896898	100099206	273	99900794	48	
13	93255344	5830	106744056	83549842	93354823	6104	10664517	98967410	100099479	273	99900521	47	
14	93261174	5822	106737887	83561639	93360927	6097	106639073	98965850	100099753	274	9990024	46	
15	93267007	5814	106731703	83573419	93367024	6089	106632976	98964283	100100027	274	9990000	45	
16	93272811	5806	106725518	83585184	93373113	6081	106626887	98962716	100100300	275	9990000	44	
17	93278617	5799	106719333	8359693	93379194	6073	106620806	98961148	100100577	275	9990000	43	
18	93284416	5790	106713158	83608661	93385267	6066	106614733	98959580	100100852	275	9990000	42	
19	93290206	5782	106706979	83620381	93391333	6058	106608606	98958011	100101127	275	9990000	41	
20	93295988	5774	106700812	83632081	93397391	6050	106602609	98956442	100101403	276	9990000	40	
21	93301761	5766	106694629	83643765	93403441	6043	106596559	98954872	100101680	277	9990000	39	
22	93307527	5758	106688473	83655434	93409484	6035	106590516	98953302	100101957	277	9990000	38	
23	93313285	5750	106682315	83667086	93415519	6027	106584431	9895173	100102231	277	9990000	37	
24	93319035	5742	106676165	83678723	93421546	6020	106578345	98950161	100102511	278	9990000	36	
25	93324777	5734	106670033	83690344	93427566	6012	106572243	98948589	100102787	279	9990000	35	
26	93330511	5726	106663948	83701950	9343358	6005	106566122	98947017	100103068	279	9990000	34	
27	93336237	5718	106657863	83713539	93439583	5997	106560041	98945445	100103346	280	9990000	33	
28	93341955	5710	106651780	83725114	93445580	5990	106553920	9894387	100103626	280	9990000	32	
29	93347665	5703	106645735	83736672	93451570	5982	106547813	98942309	100103905	280	9990000	31	
30	93353368	5694	106639732	83748215	93457552	5975	106541744	9894075	100104185	280	9990000	30	
31	93359062	5687	106633738	83759743	9346357	5967	106535673	98939150	100104465	281	9990000	29	
32	93364749	5679	106627751	83771255	93469494	5960	106529606	98937576	100104744	281	9990000	28	
33	93370428	5671	106621763	83782751	93475454	5953	106523546	98936000	100105022	281	9990000	27	
34	93376099	5663	106615780	83794232	93481407	5945	106517489	98934425	100105308	282	9990000	26	
35	93381762	5656	106609838	83805698	93487352	5938	106511431	98932849	100105590	282	9990000	25	
36	93387418	5647	106603882	83817149	93493290	5930	106505370	9893127	10010587	283	9990000	24	
37	93393065	5641	106597935	83828584	9349920	5923	106499317	98929695	100106155	283	9990000	23	
38	93398706	5632	106591994	83840004	93505143	5916	106493267	98928117	100106438	283	9990000	22	
39	93404338	5625	106586062	83851409	93511059	5909	106487213	98926539	10010671	284	9990000	21	
40	93409963	5617	106580137	83862799	93516968	5901	106481161	98924961	100106980	284	9990000	20	
41	93415580	5610	106574212	83874174	93522860	5894	106475113	98923382	100107280	284	9990000	19	
42	93421197	5602	106568287	83885533	93528763	5887	106469067	98921802	100107573	285	9990000	18	
43	93426814	5594	106562362	83896878	93534650	5880	106463023	9892022	100107858	285	9990000	17	
44	93432431	5587	106556437	83908207	93540530	5872	106456979	9891864	100108144	285	9990000	16	
45	93437973	5579	106550512	83919522	93546402	5865	106450935	98917061	100108429	286	9990000	15	
46	93443552	5572	106544587	83930822	9355226	5859	106444891	98915480	100108715	287	9990000	14	
47	93449124	5564	106538662	83942107	93558126	5851	106438847	98913898	100109002	287	9990000	13	
48	93454688	5557	106532737	83953377	93563997	5844	106432803	98912316	100109289	287	9990000	12	
49	93460245	5549	106526812	83964632	93569861	5837	106426759	98910733	100109576	288	9990000	11	
50	93465794	5542	106520887	83975873	93575715	5829	106420715	98909150	100109863	288	9990000	10	
51	93471336	5534	106514962	83987098	93581568	5822	106414671	98907566	100110151	289	9990000	9	
52	93476877	5527	106509037	83998310	93587410	5816	106408627	9890598	100110440	289	9990000	8	
53	93482419	5520	106503112	84009506	93593260	5809	106402583	98904397	100110729	290	9990000	7	
54	93487961	5512	106497187	84020688	93599103	5801	106396539	9890281	100111018	290	9990000	6	
55	93493503	5505	106491262	84031855	93604946	5795	106390495	98901226	10011130	291	9990000	5	
56	93499045	5498	106485337	84043008	93610788	5788	106384451	98899640	10011159	291	9990000	4	
57	93504587	5490	106479412	84054147	93616631	5781	106378407	98898054	10011188	292	9990000	3	
58	93510129	5483	106473487	84065270	93622470	5774	106372363	98896467	100112178	292	9990000	2	
59	93515671	5475	106467562	84076380	93628314	5767	106366319	98894879	100112469	292	9990000	1	
60	93521213	5468	106461637	84087475	93634157	5760	106360275	98893291	100112761	293	9990000	0	
	Cofine	Diff	Secant	Coverf	Cotang	Diff	Lang	Verfcdl	Cofec	D	Sine		

Deg.		NATURAL SINES, &c.										Tab. 10	
	Sine	Diff	Cosec	Cofec	Tang	Cotang.	Secant	Veri	D	Cofine			
0	2249511	2834	7750489	4 4454115	2308682	4 3314759	1 0263041	0256299	655	9743701	60		
1	2252345	2834	7747655	4 4398176	2311746	4 3257347	1 0263771	0256954	655	9743046	59		
2	2255179	2834	7744821	4 4342382	2314811	4 3200079	1 0264421	0257610	656	9742390	58		
3	2258013	2833	7741987	4 4286731	2317876	4 3142955	1 0265113	0258266	656	9741734	57		
4	2260846	2834	7739154	4 4231224	2320941	4 3085974	1 0265806	0258923	657	9741077	56		
5	2263680	2833	7736320	4 4175859	2324007	4 3029136	1 0266499	0259581	658	9740419	55		
6	2266513	2833	7733487	4 4120637	2327073	4 2972440	1 0267194	0260240	659	9739760	54		
7	2269346	2833	7730654	4 4065556	2330140	4 2915885	1 0267889	0260900	660	9739100	53		
8	2272179	2833	7727821	4 4010616	2333207	4 2859472	1 0268586	0261561	661	9738439	52		
9	2275012	2833	7724988	4 3955817	2336274	4 2803199	1 0269283	0262222	661	9737778	51		
10	2277844	2832	7722156	4 3901158	2339342	4 2747066	1 0269982	0262884	662	9737116	50		
11	2280677	2833	7719323	4 3846638	2342410	4 2691072	1 0270681	0263547	663	9736453	49		
12	2283509	2832	7716491	4 3792257	2345479	4 2635218	1 0271381	0264211	664	9735789	48		
13	2286341	2831	7713659	4 3738015	2348548	4 2579501	1 0272082	0264876	665	9735124	47		
14	2289172	2832	7710828	4 3683910	2351617	4 2523923	1 0272785	0265541	666	9734459	46		
15	2292004	2831	7707996	4 3629943	2354687	4 2468482	1 0273488	0266207	666	9733792	45		
16	2294835	2831	7705165	4 3576113	2357758	4 2413177	1 0274192	0266875	667	9733125	44		
17	2297666	2831	7702334	4 3522419	2360829	4 2358009	1 0274897	0267542	667	9732458	43		
18	2300497	2831	7699503	4 3468861	2363900	4 2302977	1 0275603	0268211	669	9731789	42		
19	2303328	2831	7696672	4 3415438	2366971	4 2248080	1 0276310	0268881	670	9731119	41		
20	2306159	2830	7693841	4 3362150	2370044	4 2193318	1 0277018	0269551	672	9730449	40		
21	2308989	2830	7691011	4 3308996	2373116	4 2138690	1 0277727	0270223	672	9729777	39		
22	2311819	2830	7688181	4 3255977	2376189	4 2084196	1 0278437	0270895	673	9729105	38		
23	2314649	2830	7685351	4 3203090	2379262	4 2029835	1 0279148	0271568	673	9728432	37		
24	2317479	2830	7682521	4 3150336	2382336	4 1975606	1 0279860	0272241	675	9727759	36		
25	2320309	2829	7679691	4 3097715	2385410	4 1921510	1 0280573	0272916	675	9727084	35		
26	2323138	2829	7676862	4 3045225	2388485	4 1867546	1 0281287	0273591	676	9726409	34		
27	2325967	2829	7674033	4 2992867	2391560	4 1813713	1 0282002	0274267	677	9725733	33		
28	2328796	2829	7671204	4 2940640	2394635	4 1760011	1 0282717	0274944	678	9725056	32		
29	2331625	2829	7668375	4 2888543	2397711	4 1706440	1 0283434	0275622	679	9724378	31		
30	2334454	2828	7665546	4 2836576	2400788	4 1652998	1 0284152	0276301	679	9723699	30		
31	2337282	2828	7662718	4 2784738	2403864	4 1599685	1 0284871	0276980	681	9723020	29		
32	2340110	2828	7659890	4 2733029	2406940	4 1546501	1 0285590	0277661	681	9722339	28		
33	2342938	2828	7657062	4 2681449	2410019	4 1493446	1 0286311	0278342	682	9721658	27		
34	2345766	2828	7654234	4 2629996	2413097	4 1440519	1 0287033	0279024	682	9720976	26		
35	2348594	2827	7651406	4 2578671	2416176	4 1387719	1 0287755	0279706	684	9720294	25		
36	2351421	2827	7648579	4 2527474	2419255	4 1335046	1 0288479	0280390	684	9719610	24		
37	2354248	2827	7645752	4 2476402	2422334	4 1282499	1 0289203	0281074	686	9718926	23		
38	2357075	2827	7642925	4 2425457	2425414	4 1230079	1 0289929	0281760	686	9718240	22		
39	2359902	2827	7640098	4 2374637	2428494	4 1177784	1 0290655	0282446	687	9717554	21		
40	2362729	2826	7637271	4 2323943	2431575	4 1125614	1 0291383	0283133	687	9716867	20		
41	2365555	2826	7634445	4 2273373	2434656	4 1073569	1 0292111	0283820	689	9716180	19		
42	2368381	2826	7631619	4 2222928	2437737	4 1021649	1 0292840	0284509	689	9715497	18		
43	2371207	2826	7628793	4 2172606	2440819	4 0969852	1 0293571	0285198	690	9714802	17		
44	2374033	2826	7625967	4 2122408	2443902	4 0918178	1 0294302	0285888	691	9714112	16		
45	2376859	2825	7623141	4 2072333	2446984	4 0866627	1 0295034	0286579	692	9713421	15		
46	2379684	2826	7620316	4 2022380	2450068	4 0815199	1 0295768	0287271	693	9712729	14		
47	2382510	2825	7617490	4 1972549	2453151	4 0763892	1 0296502	0287964	693	9712036	13		
48	2385335	2824	7614665	4 1922840	2456236	4 0712707	1 0297237	0288657	694	9711343	12		
49	2388159	2825	7611841	4 1873252	2459320	4 0661643	1 0297973	0289351	696	9710649	11		
50	2390984	2824	7609016	4 1823785	2462405	4 0610700	1 0298711	0290047	696	9709953	10		
51	2393808	2825	7606190	4 1774438	2465491	4 0559877	1 0299449	0290742	697	9709257	9		
52	2396633	2824	7603367	4 1725210	2468577	4 0509174	1 0300188	0291439	698	9708561	8		
53	2399457	2823	7600543	4 1676102	2471663	4 0458590	1 0300928	0292137	698	9707863	7		
54	2402280	2824	7597720	4 1627114	2474750	4 0408125	1 0301669	0292835	699	9707165	6		
55	2405104	2823	7594896	4 1578243	2477837	4 0357779	1 0302411	0293534	700	9706466	5		
56	2407927	2824	7592073	4 1529491	2480925	4 0307550	1 0303154	0294234	701	9705766	4		
57	2410751	2823	7589249	4 1480856	2484013	4 0257440	1 0303898	0294935	702	9705065	3		
58	2413574	2822	7586426	4 1432339	2487102	4 0207446	1 0304643	0295637	702	9704363	2		
59	2416396	2823	7583604	4 1383939	2490191	4 0157570	1 0305389	0296339	704	9703661	1		
60	2419219	2823	7580781	4 1335655	2493280	4 0107809	1 0306136	0297043	704	9702957	0		
	Cofine	Diff.	Verf.	Secant	Cotan.	Tang.	Cofec.	Cosec.	D.	Sine			

13 Deg		LOG SINES, &c										(-75)	
	Sine	Diff	Cofec	Veriedf	Tang	Diff	Cotang	Coverf	Secant	D	Cofine		
0	93520880		106179120	81087475	93633641	5760	106366359	98893291	100112,61		99887211	6	
1	93526349	5469	106473651	84098556	93639401	5754	106360591	98891703	100113053	292	99886911	59	
2	93531810	5161	106468190	84109622	93645155	5746	106354848	98890114	100113445	92	99886653	54	
3	93537264	5151	106462736	84120675	93650901	5740	106349099	98888525	100113837	292	99886395	57	
4	93542710	5416	106457200	84131713	93656641	5733	106343359	98886935	100114224	293	99886137	50	
5	93548150	5440	106451850	84142736	93662374	5726	106337606	98885344	100114612	294	99885879	53	
6	93553555	5432	106446418	84153746	93668100	5719	106331900	98883751	100115000	294	99885621	51	
7	93559007	5425	106440993	84164711	93673819	5713	106326181	98882162	100115388	294	99885363	48	
8	93564426	5419	106435574	84175723	93679533	5706	106320468	98880571	100115776	295	99885105	45	
9	93569836	5410	106430164	84186690	93685238	5699	106314762	98878978	100116164	295	99884847	42	
10	93575240	5401	106424760	84197614	93690937	5692	106309063	98877386	100116552	296	99884589	39	
11	93580633	5397	106419363	84208583	93696629	5686	106303371	98875792	100116940	296	99884331	36	
12	9358607	5392	106413973	84219508	93702315	5679	106297685	98874199	100117328	297	99884073	33	
13	93591409	5386	106408591	84230420	93707994	5673	106292006	98872605	100117716	297	99883815	30	
14	93596785	5376	106403215	84241318	93713667	5666	106286333	98871010	100118104	297	99883557	27	
15	93602154	5369	106397816	84252201	93719333	5659	106280667	98869415	100118492	298	99883299	24	
16	93607515	5361	106392485	84263078	93724992	5653	106275008	98867819	100118880	298	99883041	21	
17	93612870	5355	106387130	84273938	93730645	5646	106269355	98866223	100119268	298	99882783	18	
18	93618217	5347	106381783	84284770	93736291	5639	106263701	98864627	100119656	299	99882525	15	
19	93623550	5341	106376442	84295599	93741930	5633	106258071	98863030	100120044	299	99882267	12	
20	93628899	5334	106371108	84306414	93747563	5627	106252437	98861433	100120432	300	99882009	9	
21	93634219	5327	106365781	84317216	93753190	5620	106246810	98859834	100120820	300	99881751	6	
22	93639539	5320	106360461	84328004	93758810	5613	106241190	98858236	100121208	300	99881493	3	
23	93644855	5313	106355148	84338778	93764433	5607	106235577	98856637	100121596	301	99881235	0	
24	93650158	5306	106349842	84349539	93770030	5601	106229970	98855038	100121984	301	99880977	0	
25	93655450	5300	106344542	84360286	93775631	5594	106224369	98853438	100122372	301	99880719	0	
26	93660750	5292	106339250	84371020	93781225	5588	106218775	98851837	100122760	302	99880461	0	
27	93666036	5286	106333964	84381740	93786813	5581	106213184	98850236	100123148	302	99880203	0	
28	93671315	5279	106328685	84392447	93792394	5575	106207606	98848635	100123536	303	99879945	0	
29	93676587	5272	106323413	84403141	93797969	5568	106202031	98847033	100123924	303	99879687	0	
30	93681853	5266	106318147	84413821	93803537	5563	106196463	98845431	100124312	303	99879429	0	
31	93687111	5258	106312889	84424488	93809100	5555	106190900	98843828	100124700	304	99879171	0	
32	93692363	5251	106307637	84435142	93814655	5550	106185345	98842225	100125088	304	99878913	0	
33	93697608	5245	106302392	84445783	93820205	5543	106179795	98840621	100125476	305	99878655	0	
34	93702847	5239	106297152	84456410	93825748	5537	106174252	98839017	100125864	305	99878397	0	
35	93708079	5233	106291921	84467021	93831285	5531	106168715	98837413	100126252	306	99878139	0	
36	93713301	5225	106286696	84477625	93836816	5524	106163184	98835807	100126640	306	99877881	0	
37	93718523	5219	106281477	84488133	93842340	5518	106157660	98834202	100127028	307	99877623	0	
38	93723735	5211	106276265	84498788	93847858	5512	106152142	98832596	100127416	307	99877365	0	
39	93728940	5205	106271060	84509350	93853370	5506	106146630	98830989	100127804	308	99877107	0	
40	93734139	5199	106265861	84519898	93858876	5500	106141124	98829382	100128192	308	99876849	0	
41	93739331	5193	106260669	84530431	93864376	5493	106135624	98827775	100128580	309	99876591	0	
42	93744517	5187	106255483	84540957	93869869	5487	106130131	98826166	100128968	309	99876333	0	
43	93749696	5179	106250301	84551467	93875356	5481	106124644	98824558	100129356	310	99876075	0	
44	93754868	5172	106245133	84561964	93880837	5475	106119163	98822949	100129744	310	99875817	0	
45	93760034	5166	106239966	84572448	93886312	5469	106113681	98821340	100130132	311	99875559	0	
46	93765194	5160	106234806	84582920	93891781	5463	106108219	98819730	100130520	311	99875301	0	
47	93770317	5153	106229653	84593378	93897244	5456	106102756	98818119	100130908	312	99875043	0	
48	93775493	5146	106224500	84603849	93902700	5451	106097300	98816509	100131296	312	99874785	0	
49	93780633	5140	106219360	84614225	93908151	5444	106091849	98814897	100131684	313	99874527	0	
50	93785767	5134	106214231	84624677	93913595	5439	106086405	98813285	100132072	313	99874269	0	
51	93790894	5127	106209106	84635085	93919034	5432	106080966	98811673	100132460	314	99874011	0	
52	93796015	5121	106203985	84645480	93924466	5427	106075534	98810060	100132848	314	99873753	0	
53	93801129	5114	106198871	84655863	93929893	5420	106070107	98808446	100133236	315	99873495	0	
54	93806237	5108	106193763	84666233	93935313	5414	106064687	98806833	100133624	315	99873237	0	
55	93811339	5102	106188661	84676590	93940727	5409	106059273	98805218	100134012	315	99872979	0	
56	93816434	5095	106183566	84686935	93946136	5402	106053864	98803604	100134400	316	99872721	0	
57	93821523	5088	106178477	84697267	93951538	5397	106048462	98801988	100134788	316	99872463	0	
58	93826605	5082	106173395	84707587	93956935	5391	106043065	98800377	100135176	317	99872205	0	
59	93831682	5077	106168318	84717894	93962321	5385	106037674	98798756	100135564	317	99871947	0	
60	93836752	5070	106163248	84728189	93967711		106032289	98797140	100135952	318	99871689	0	
	Cofine	Diff	Secant	Coverf	Cotang	Diff	Tang	Veriedf	Cofec	D	Sine		

14 Deg		NATURAL SINES, &c							Tab. 10	
	Sine	Diff	Coverf	Cofec	Ting	Cotang.	Secant	Verf.	D	Cofine
0	2419219	2822	580781	41335655	2493280	40107809	10306136	0297043		170295
1	2422041	2822	757795	41287457	2496370	40058165	10306884	0297747	104	1702253
2	2424863	2822	7575137	41239435	2499460	40008636	10307633	0298452	705	1701548
3	2427685	2822	7572315	41191498	250-551	39959223	10308383	0299158	706	1700842
4	2430507	2822	7569493	41143675	2505642	39909924	10309134	0299864	707	1700136
5	2433329	2822	7566671	41095967	2508734	39860739	10309886	0300572	708	1699430
6	2436150	2821	7563850	41048374	25118-6	39811609	10310639	0301280	709	1698724
7	2438971	2821	7561029	41000893	2514919	39762712	10311393	0301989	710	1698011
8	2441792	2821	7558208	40953526	2518012	39713868	10312147	0302699	711	1697301
9	2444613	2821	7555387	40906272	2521106	39665137	10312903	0303409	712	1696591
10	2447433	2820	7552567	40859130	2524200	39616515	10313660	0304121	713	1695870
11	2450254	2821	7549746	40811-100	2527294	39568011	10314418	0304833	714	1695161
12	2453074	2820	7546926	40765161	2530388	39519615	10315177	0305544	715	1694453
13	2455894	2819	7544106	40718374	2533484	39471331	10315936	0306260	716	1693740
14	2458713	2819	7541287	40671677	2536580	39423157	10316697	0306975	717	1693025
15	2461533	2819	7538467	40625091	2539676	39375094	10317457	0307691	718	1692309
16	2464352	2819	7535648	40578615	2542773	39327141	10318220	0308407	719	1691593
17	2467171	2819	7532829	40532-49	2545870	39279297	10318985	0309125	720	1690875
18	2469990	2819	7530010	40485992	2548968	39231563	10319750	0309843	721	1690157
19	2472809	2818	7527191	40439844	2552066	39183937	10320516	0310560	722	1689438
20	2475627	2818	7524373	40393804	2555165	39136420	10321280	0311281	723	1688719
21	2478445	2818	7521555	40347872	2558264	39089011	10322050	0312002	724	1688000
22	2481263	2818	7518737	40301-048	2561363	39041710	10322818	0312723	725	1687277
23	2484081	2818	7515919	402556332	2564463	38994516	10323585	0313445	726	1686555
24	2486899	2817	7513101	40210722	2567564	38947429	10324350	0314168	727	1685833
25	2489716	2817	7510284	40165219	2570664	38900448	10325130	0314892	728	1685108
26	2492533	2817	7507467	40119823	2573766	38853574	10325903	0315617	729	1684383
27	2495350	2817	7504650	40074532	2576868	38806805	10326676	0316342	730	1683658
28	2498167	2817	7501833	40029347	2579970	38760142	10327451	0317069	731	1682931
29	2500984	2816	7499016	39984267	2583073	38713584	10328227	0317796	732	1682204
30	2503800	2816	7496200	39939192	2586176	38667131	10329003	0318524	733	1681476
31	2506616	2816	7493384	39894421	2589280	38620780	10329781	0319252	734	1680748
32	2509432	2816	7490568	39849654	2592384	38574537	10330559	0319982	735	1680018
33	2512248	2815	7487752	39804991	2595488	38528396	10331339	0320710	736	1679288
34	2515063	2816	7484937	39760431	2598593	38482358	10332119	0321443	737	1678557
35	2517879	2815	7482121	39715975	2601699	38436424	10332901	0322175	738	1677825
36	2520694	2814	7479306	396716-1	2604805	38390591	10333683	0322908	739	1677092
37	2523508	2815	7476492	39627369	2607911	38344861	10334467	0323642	740	1676350
38	2526323	2814	7473677	39583219	2611018	38299233	10335251	0324376	741	1675604
39	2529137	2815	7470863	39539171	2614126	38253707	10336037	0325110	742	1674888
40	2531952	2815	7468048	39495224	2617234	38208281	10336823	0325844	743	1674152
41	2534766	2814	7465234	39451379	2620342	38162957	10337611	0326585	744	1673415
42	2537579	2814	7462421	39407633	2623451	38117733	10338399	0327322	745	1672678
43	2540393	2813	745960	39363988	2626560	38072609	10339188	0328061	746	1671939
44	2543206	2813	7456794	39320443	2629670	38027585	10339979	0328800	747	1671200
45	2546019	2813	7453981	39276997	2632780	37982661	10340770	0329541	748	1670459
46	2548832	2813	7451168	39233651	2635891	37937835	10341563	0330282	749	1669718
47	2551645	2813	7448355	39190403	2639002	37893109	10342356	0331023	750	1668977
48	2554458	2812	7445542	39147254	2642114	37848481	10343151	0331766	751	1668234
49	2557270	2812	7442730	39104203	2645226	37803951	10343946	0332510	752	1667490
50	2560082	2812	7439918	39061250	2648339	37759519	10344743	0333254	753	1666746
51	2562894	2811	7437106	39018395	2651452	37715185	10345540	0333999	754	1666001
52	2565705	2812	7434295	38975637	2654566	37670947	10346338	0334745	755	1665255
53	2568517	2811	7431483	38932976	2657680	37626807	10347138	0335492	756	1664508
54	2571328	2811	7428672	38890411	2660794	37582763	10347938	0336239	757	1663761
55	2574139	2811	7425861	38847943	2663909	37538815	10348740	0336988	758	1663012
56	2576950	2810	7423050	38805570	2667025	37494963	10349542	0337737	759	1662263
57	2579760	2810	7420240	38763293	2670141	37451207	10350346	0338487	760	1661513
58	2582570	2811	7417430	38721112	2673257	37407546	10351150	0339238	761	1660762
59	2585381	2809	7414619	38679025	2676374	37363980	10351955	0339989	762	1660011
60	2588190		7411810	38637033	2679492	37320508	10352762	0340742	763	1659258
	Cofine	Diff	Verf	Secant	Cotan	Tang	Cofec.	Coverf	D.	Sine

14 Deg		LOG SINUS, &c										(277)
	Sine	Diff	Cofec	Verfed	Tang	Diff	Cotang	Coverf	Secant	D	Cofine	
0	3836752		10 6163218	8 4726189	9 3967711		10 603 89	9 8797110	10 0130959		9 9869041	60
1	3841815	5063	10 6158185	8 4738447	9 3973089	5378	10 6026911	9 8795522	10 0131744	315	9 9868726	59
2	3846873	5058	10 6153121	8 4751872	9 3978463	5371	10 6021531	9 8793905	10 0131590	316	9 9868410	58
3	3851924	5051	10 6148076	8 4750000	9 3983830	5361	10 6016170	9 8792286	10 0131706	316	9 9868094	57
4	3856969	5045	10 6143031	8 4769 16	9 3989191	5361	10 6010809	9 8790668	10 0132222	316	9 9867778	56
5	3862008	5039	10 6137992	8 4779480	9 3994541	5356	10 6005453	9 8789019	10 0132539	317	9 9867461	55
6	3867040	5032	10 6132960	8 4789701	9 3999890	5349	10 6000104	9 87871 9	10 0132856	317	9 9867144	54
7	3872067	5027	10 6127933	8 4799910	9 4005240	5341	10 5994760	9 8785809	10 0133173	317	9 9866827	53
8	3877087	5020	10 6122913	8 4810107	9 4010578	5338	10 598942	9 8784188	10 0133491	318	9 9866509	52
9	3882101	5014	10 6117890	8 4820291	9 4015910	5332	10 5984090	9 8782567	10 0133809	318	9 9866191	51
10	3887109	5008	10 6112891	8 4830461	9 4021237	5327	10 5978763	9 8780946	10 0134128	319	9 986587	50
11	3892111	5001	10 6107889	8 48406 5	9 4026558	5321	10 5973442	9 8779324	10 0134447	319	9 9865553	49
12	3897106	4995	10 6102894	8 4850773	9 4031873	5315	10 5968127	9 8777701	10 0134767	320	9 9865233	48
13	3902096	4990	10 6097904	8 4860910	9 4037182	5309	10 5962818	9 8776078	10 0135087	320	9 9864913	47
14	3907079	4983	10 6092921	8 4871034	9 4042486	5304	10 5957514	9 8774454	10 0135407	320	9 9864593	46
15	3912057	4977	10 6087943	8 4881147	9 4047784	5298	10 5952216	9 8772830	10 0135727	320	9 9864273	45
16	3917028	4971	10 6082972	8 4891247	9 4053076	529	10 5946924	9 8771206	10 0136048	321	9 9863952	44
17	3921993	4965	10 6078001	8 4901336	9 4058363	5287	10 594163	9 8769581	10 0136370	322	9 9863630	43
18	3926952	4959	10 6073048	8 4911412	9 4063644	5281	10 5936356	9 8767955	10 0136692	322	9 9863308	42
19	3931905	4953	10 6068095	8 4921477	9 4068919	5275	10 5931081	9 8766329	10 0137014	322	9 9862986	41
20	3936852	4947	10 6063148	8 4931530	9 4074189	5270	10 5925811	9 8764703	10 0137337	323	9 9862663	40
21	3941794	4941	10 6058206	8 4941572	9 4079453	5264	10 5920547	9 8763076	10 0137660	323	9 9862340	39
22	3946729	4935	10 6053271	8 4951671	9 4084712	5259	10 5915286	9 8761449	10 0137983	323	9 9862017	38
23	3951658	4929	10 6048342	8 4961619	9 4089965	5253	10 5910035	9 8759821	10 0138307	324	9 9861693	37
24	3956581	4923	10 6043419	8 49716 5	9 4095 12	5247	10 5904788	9 8758192	10 0138631	324	9 9861369	36
25	3961509	4918	10 6038501	8 4981619	9 4100154	5242	10 5899516	9 8756563	10 0138955	325	9 9861045	35
26	3966441	4911	10 6033590	8 4991602	9 4105690	5236	10 5894310	9 8754934	10 0139280	326	9 9860720	34
27	3971375	4905	10 6028685	8 5001573	9 4110921	5231	10 5889071	9 8753304	10 0139606	326	9 9860394	33
28	3976315	4900	10 6023785	8 5011532	9 4116146	5225	10 5883854	9 8751674	10 0139931	325	9 9860069	32
29	3981259	4894	10 6018891	8 5021480	9 4121366	5220	10 5878634	9 8750043	10 0140258	327	9 9859747	31
30	3986201	4887	10 6014004	8 5031416	9 4126581	5215	10 5873419	9 8748412	10 0140581	327	9 9859416	30
31	3991148	4882	10 6009122	8 5041341	9 4131789	5208	10 5868211	9 8746780	10 0140911	327	9 9859081	29
32	3996095	4876	10 6004246	8 5051254	9 4136993	5204	10 5863009	9 8745147	10 0141238	327	9 9858746	28
33	4001040	4871	10 5999375	8 5061156	9 4142191	5198	10 5857809	9 8743515	10 0141566	328	9 9858414	27
34	4005983	4864	10 5994511	8 5071046	9 4147383	5192	10 5852617	9 8741881	10 0141891	328	9 9858081	26
35	4010924	4859	10 5989652	8 50809 5	9 4152570	5187	10 5847430	9 8740248	10 0142223	329	9 9857747	25
36	4015861	4853	10 5984799	8 5090922	9 4157752	5181	10 5842248	9 8738613	10 0142551	328	9 9857419	24
37	4020804	4847	10 5979952	8 5100648	9 4162928	5176	10 583707	9 8736978	10 0142881	330	9 9857081	23
38	4025748	4841	10 5975111	8 5110493	9 4168099	5171	10 5831901	9 8735343	10 0143210	329	9 9856746	22
39	4030692	4835	10 5970276	8 5120327	9 4173265	5166	10 5826735	9 8733707	10 0143540	330	9 9856410	21
40	4035635	4830	10 5965446	8 5130148	9 4178425	5160	10 5821575	9 8732071	10 0143871	331	9 9856071	20
41	4040578	4824	10 596062	8 5139959	9 4183580	5155	10 5816420	9 8730434	10 0144202	331	9 9855738	19
42	4045521	4818	10 5955804	8 5149756	9 4188729	5149	10 5811271	9 8728797	10 0144533	332	9 9855407	18
43	4050464	4813	10 5950991	8 5159546	9 4193874	5145	10 5806126	9 8727159	10 0144865	332	9 9855071	17
44	4055407	4808	10 5946184	8 5169324	9 4199013	5139	10 5800987	9 8725521	10 0145197	333	9 9854738	16
45	4060350	4801	10 5941383	8 5179089	9 4204146	5133	10 5795854	9 8723883	10 0145529	333	9 9854407	15
46	4065293	4796	10 5936587	8 5188814	9 4209275	5129	10 5790725	9 8722243	10 0145862	333	9 9854071	14
47	4070236	4790	10 5931797	8 5198588	9 4214398	5123	10 5785602	9 8720604	10 0146195	334	9 9853738	13
48	4075179	4784	10 5927013	8 5208320	9 4219515	5117	10 5780485	9 8718963	10 0146529	334	9 9853407	12
49	4080122	4779	10 5922234	8 5218042	9 4224628	5113	10 5775372	9 8717323	10 0146862	335	9 9853071	11
50	4085065	4773	10 5917461	8 5227752	9 4229735	5107	10 5770265	9 8715682	10 0147197	335	9 9852738	10
51	4090008	4768	10 5912694	8 5237451	9 4234838	5103	10 5765162	9 8714040	10 0147532	335	9 9852407	9
52	4094951	4762	10 5907932	8 5247140	9 4239935	5097	10 5760065	9 8712398	10 0147867	335	9 9852071	8
53	4099894	4756	10 5903176	8 5256817	9 4245026	5091	10 5754974	9 8710755	10 0148202	336	9 9851738	7
54	4104837	4751	10 5898425	8 5266484	9 4250113	5087	10 5749887	9 8709112	10 0148538	336	9 9851407	6
55	4109780	4745	10 5893680	8 5276139	9 4255194	5081	10 5744806	9 8707468	10 0148875	337	9 9851071	5
56	4114723	4739	10 5888941	8 5285784	9 4260271	5077	10 5739729	9 8705824	10 0149211	337	9 9850738	4
57	4119666	4734	10 5884207	8 5295417	9 4265312	5071	10 5734658	9 8704179	10 0149548	338	9 9850407	3
58	4124609	4729	10 5879478	8 5305040	9 4270408	5066	10 5729592	9 8702534	10 0149886	338	9 9850071	2
59	4129552	4723	10 5874755	8 5314652	9 4275469	5061	10 5724531	9 8700889	10 0150224	338	9 9849738	1
60	4134495	4717	10 5870038	8 5324253	9 4280525	5056	10 5719475	9 8699243	10 0150562	338	9 9849407	0
	Cofine	Diff	Secant	Coverf	Cotang	Diff	Tang	Verfed	Cofec	D	Sine	

15 Deg.		NATURAL SINES, &c								Tab. 10	
	Sine	Diff	Covers	Cofec	Tang.	Cot ing	Secant	Verf.	D	Cofine	
0	2588190	2810	7411810	38637033	2679492	37320508	10352762	0340742		9659258	60
1	2591000	2810	7409000	38595135	2682610	37277131	10353569	0341495	753	9658505	59
2	2593810	2809	7406190	38553332	2685728	37233847	10354378	0342249	754	9657751	58
3	2596619	2809	7403381	38511622	2688847	37190658	10355187	0343004	755	9656996	57
4	2599428	2809	7400572	38470006	2691967	37147561	1035599	0343760	756	9656240	56
5	2602237	2808	7397763	38428481	2695087	37104558	10356809	0344516	756	9655484	55
6	2605045	2808	7394955	38387052	2698207	37061648	10357621	0345274	758	9654726	54
7	2607853	2809	7392147	38345713	2701328	37018830	10358435	0346032	758	9653968	53
8	2610662	2807	7389338	38304167	2704449	36976104	10359249	0346791	759	9653209	52
9	2613469	2808	7386531	38263313	2707571	36933469	10360065	0347551	760	9652449	51
10	2616277	2808	7383723	38222251	2710694	36890927	10360881	0348311	760	9651689	50
11	2619085	2808	7380915	38181280	2713817	36848475	10361699	0349073	762	9650927	49
12	2621892	2807	7378108	38140399	2716940	36806115	10362517	0349835	762	9650165	48
13	2624699	2807	7375301	38099610	2720064	36763845	10363337	0350598	763	9649402	47
14	2627506	2806	7372494	38058911	2723188	36721665	10364157	0351362	764	9648638	46
15	2630312	2806	7369688	38018301	2726313	36679575	10364979	0352127	765	9647875	45
16	2633118	2806	7366882	37977782	2729438	36637575	10365801	0352892	765	9647108	44
17	2635925	2805	7364075	37937352	2732564	36595665	10366625	0353659	767	9646341	43
18	2638730	2806	7361270	37897011	2735690	36553844	10367449	0354426	768	9645571	42
19	2641536	2806	7358464	37856760	2738817	36512111	10368275	0355194	769	9644806	41
20	2644342	2805	7355658	37816596	2741945	36470467	10369101	0355963	769	9644037	40
21	2647147	2805	7352853	37776522	2745072	36428911	10369929	0356732	771	9643268	39
22	2649952	2805	7350048	37736535	2748201	36387444	10370757	0357503	771	9642497	38
23	2652757	2804	7347243	37696636	2751330	36346064	10371587	0358274	772	9641726	37
24	2655561	2805	7344439	37656824	2754459	36304771	10372417	0359046	773	9640954	36
25	2658366	2804	7341634	37617100	2757589	36263566	10373249	0359819	774	9640181	35
26	2661170	2803	7338830	37577462	2760719	36222447	10374082	0360593	774	9639407	34
27	2663973	2803	7336027	37537911	2763850	36181415	10374915	0361367	774	9638633	33
28	2666777	2804	7333223	37498447	2766981	36140409	10375750	0362142	775	9637858	32
29	2669581	2804	7330419	37459068	2770113	36099609	10376585	0362919	777	9637081	31
30	2672384	2803	7327616	37419775	2773245	36058835	10377422	0363695	776	9636305	30
31	2675187	2802	7324813	37380568	2776378	36018146	10378260	0364473	778	9635527	29
32	2677989	2803	7322011	37341446	2779512	35977543	10379098	0365252	779	9634748	28
33	2680792	2802	7319208	37302409	2782646	35937024	10379938	0366031	779	9633969	27
34	2683594	2802	7316406	37263457	2785780	35896590	10380779	0366811	780	9633189	26
35	2686396	2802	7313604	37224589	2788915	35856141	10381621	0367592	781	9632408	25
36	2689198	2802	7310802	37185805	2792050	35815975	10382463	0368374	782	9631626	24
37	2692000	2801	7308000	37147105	2795186	35775794	10383307	0369157	783	9630843	23
38	2694801	2801	7305199	37108489	2798322	35735696	10384152	0369940	785	9630060	22
39	2697602	2801	7302398	37069956	2801459	35695681	10384998	0370725	785	9629275	21
40	2700403	2801	7299597	37031506	2804597	35655749	10385844	0371510	786	9628490	20
41	2703204	2800	7296796	36993139	2807735	35615900	10386692	0372296	787	9627704	19
42	2706004	2801	7293996	36954854	2810873	35576133	10387541	0373083	787	9626917	18
43	2708805	2800	7291195	36916652	2814011	35536449	10388391	0373870	788	9626130	17
44	2711605	2799	7288395	36878532	2817152	35496846	10389242	0374658	790	9625342	16
45	2714404	2800	7285596	36840493	2820292	35457325	10390094	0375448	790	9624552	15
46	2717204	2799	7282796	36802536	2823432	35417886	10390947	0376238	790	9623762	14
47	2720003	2799	7279997	36764660	2826573	35378528	10391800	0377028	792	9622972	13
48	2722802	2799	7277198	36726865	2829715	35339251	10392655	0377820	793	9622180	12
49	2725601	2799	7274399	36689151	2832857	35300054	10393511	0378613	793	9621387	11
50	2728400	2798	7271600	36651518	2835999	35260938	10394368	0379406	794	9620594	10
51	2731198	2798	7268802	36613964	2839143	35221902	10395226	0380200	794	9619800	9
52	2733997	2799	7266003	36576491	2842286	35182946	10396085	0380995	795	9619005	8
53	2736794	2797	7263206	36539097	2845430	35144070	10396945	0381790	795	9618210	7
54	2739592	2798	7260408	36501783	2848575	35105273	10397806	0382587	797	9617413	6
55	2742390	2797	7257610	36464548	2851720	35066555	10398669	0383384	798	9616616	5
56	2745187	2797	7254813	36427392	2854866	35027916	10399532	0384182	799	9615818	4
57	2747984	2797	7252016	36390315	2858012	34989356	10400396	0384981	800	9615019	3
58	2750781	2796	7249219	36353316	2861159	34950874	10401261	0385781	801	9614219	2
59	2753577	2797	7246423	36316395	2864306	34912470	10402127	0386582	801	9613418	1
60	2756374	2797	7243626	36279553	2867454	34874144	10402994	0387383	801	9612617	0
	Cofine	Diff.	Verf.	Secant	Cotan	Tang.	Cofec	Covers	D,	Sine	

15 Deg		LOG. SINES, &c										(279)
	Sine	Dif	Colec	Veiled	Tang	Dif	Cotang	Coverf	Secant	D	Cotang	
0	94129962		105870038	85324253	94280525		105719475	98699243	100150562		99849438	60
1	94134674	47	105865326	85333844	94285575	5050	105714425	98697596	100150901	339	99849099	59
2	94139381	4707	105860619	85343423	94290621	5046	105709379	98695949	100151240	339	99848760	58
3	94144082	4701	105855918	85352997	94295661	5040	105704339	98694301	100151580	340	99848420	57
4	94148778	4696	105851222	85362551	94300697	5036	105699303	98692653	100151919	339	99848081	56
5	94153468	4690	105846532	85372098	94305727	5030	10569473	98691004	100152260	341	99847740	55
6	94158152	4684	105841848	85381635	94310753	5026	10568924	98689355	100152600	340	99847400	54
7	94162832	4680	105837168	85391161	94315773	5020	105684227	98687706	100152941	341	99847059	53
8	94167506	4674	105832494	85400677	94320789	5016	105679211	98686056	100153283	342	99846717	52
9	94172174	4668	10582786	85410182	94325799	5010	105674201	98684405	100153625	342	99846375	51
10	94176837	4663	105823163	85419676	94330801	5005	105669196	98682754	100153967	342	99846033	50
11	94181495	4658	105818405	85429160	94335805	5001	105664195	9868110	100154310	343	99845690	49
12	94186148	4653	105813652	85438633	94340800	4995	105659200	98679450	100154653	343	99845347	48
13	94190795	4647	10580905	85448096	94345791	4991	105654209	98677798	100154996	343	99845004	47
14	94195436	4641	105804564	85457548	94350776	4985	105649224	98676145	100155340	344	99844660	46
15	94200072	4637	105799927	85466990	94355757	4981	105644243	98674491	100155684	344	99844316	45
16	94204704	4631	105795296	85476422	94360733	4976	105639267	98672837	100156029	345	99843971	44
17	94209330	4626	105790670	85485843	94365704	4971	105634296	98671182	100156371	345	99843626	43
18	94213950	4620	105786050	85495253	94370670	4966	105629330	98669527	100156719	345	99843281	42
19	94218566	4616	105781434	85504654	94375631	4961	105624369	98667872	100157065	346	99842935	41
20	94223176	4610	105776824	85514044	94380587	4956	105619413	98666216	100157411	346	99842589	40
21	94227780	4604	105772220	85523423	94385538	4951	105614462	98664559	100157758	347	99842242	39
22	94232380	4600	105767620	85532793	94390485	4947	105609515	98662902	100158105	347	99841895	38
23	94236974	4594	105763026	85542152	94395426	4941	105604574	98661244	100158452	347	99841548	37
24	94241563	4589	105758437	85551500	94400362	4937	105599637	98659586	100158800	348	99841200	36
25	94246147	4584	105753853	85560839	94405295	4932	105594705	98657928	100159148	348	99840852	35
26	94250726	4579	105749274	85570167	94410222	4927	105589778	98656269	100159497	349	99840503	34
27	94255299	4573	105744701	85579485	94415145	4923	105584855	98654609	100159846	349	99840154	33
28	94259867	4568	105740133	85588793	94420062	4917	105579938	98652949	100160195	349	99839805	32
29	94264430	4563	105735570	85598091	94424975	4913	10557505	98651288	100160545	350	99839455	31
30	94268988	4558	105731012	85607379	94429883	4908	105570117	98649627	100160895	350	99839105	30
31	94273541	4553	105726459	85616656	94434786	4903	105565214	98647966	100161245	350	99838755	29
32	94278089	4548	105721911	85625924	94439685	4899	105560315	98646303	100161596	351	99838404	28
33	94282631	4542	105717369	85635181	94444579	4894	105555421	98644641	100161948	352	99838052	27
34	94287169	4538	105712831	85644429	94449468	4889	105550532	98642978	100162299	351	99837701	26
35	94291701	4532	105708299	85653666	94454352	4884	105545648	98641314	100162652	353	99837348	25
36	94296228	4527	105703772	85662894	94459232	4880	105540768	98639650	100163004	352	99836996	24
37	94300750	4522	105699250	85672111	94464107	4875	105535893	98637985	100163357	353	99836643	23
38	94305267	4517	105694733	85681318	94468978	4871	105531022	98636320	100163710	353	99836290	22
39	94309779	4512	105690211	85690516	94473843	4865	105526157	98634655	100164064	354	99835936	21
40	94314286	4507	105685694	85699704	94478704	4861	105521296	98632989	100164418	354	99835582	20
41	94318788	4502	105681172	85708881	94483561	4857	105516439	98631322	100164773	355	99835227	19
42	94323285	4497	105676655	85718040	94488413	4852	105511587	98629655	100165128	355	99834871	18
43	94327777	4492	105672143	85727207	94493260	4847	105506740	98627987	100165483	355	99834517	17
44	94332264	4487	105667636	85736355	9449810	4842	105501898	98626319	100165839	356	99834161	16
45	94336746	4482	105663134	85745494	94502940	4838	105497060	98624651	100166195	356	99833805	15
46	94341223	4477	105658637	85754622	94507771	4834	10549226	98622981	100166551	356	99833449	14
47	94345691	4471	105654146	85763741	94512602	4828	105487398	98621312	100166908	357	99833092	13
48	94350161	4466	105649659	85772850	94517427	4825	105482573	98619642	100167265	357	99832735	12
49	94354623	4462	105645177	85781950	94522246	4819	105477754	98617971	100167623	358	99832377	11
50	94359080	4457	105640690	85791039	94527061	4815	105472939	98616300	100167981	358	99832019	10
51	94363531	4452	105636208	85800119	94531872	4811	105468128	98614628	100168339	358	99831661	9
52	94367986	4448	105631720	85809189	94536678	4806	105463322	98612956	100168698	359	99831302	8
53	94372422	4443	105627238	85818250	94541479	4801	105458521	98611283	100169058	360	99830942	7
54	94376859	4438	105622751	85827301	94546276	4797	105453724	98609610	100169417	359	99830583	6
55	94381292	4433	105618268	85836342	94551069	4793	105448931	98607936	100169777	360	99830223	5
56	94385719	4428	105613781	85845374	94555857	4788	105444143	98606262	100170138	361	99829862	4
57	94390142	4423	105609298	85854396	94560641	4784	105439359	98604588	100170499	361	99829501	3
58	94394560	4418	105604809	85863409	94565420	4779	105434580	98602914	100170860	361	99829140	2
59	94398973	4413	105600317	85872412	94570194	4774	105429806	98601231	100171222	362	99828778	1
60	94403381	4408	105595819	85881406	94574964	4770	105425036	98599560	100171584	36	99828416	0
	Cotang	Dif	Secant	Coverf	Cotang	Dif	Tang	Verifed	Cosec	D	Sine	

16 Deg		NATURAL SINES, &c.										Tab 10	
	Sine	Diff	Coverf	Cotec	Tang	Cotang	Secant	Verf	D	Cofine			
0	2756374	796	7243626	3 6279553	2867454	3 4874144	1 0402994	0387383	802	9612617	60		
1	2759170	-795	7240830	3 6242788	-87060	3 4835896	1 0403863	0388185	803	9611815	59		
2	2761965	-796	7238035	3 6206101	-873751	3 4797726	1 0404732	0388988	804	9611012	58		
3	2764761	2795	7235239	3 6169490	-876900	3 475963-	1 0405602	0389792	805	9610208	57		
4	2767556	2796	7232444	3 6132957	-880050	3 47-1616	1 0406473	0390597	805	9609403	56		
5	-770352	2795	7229648	3 6096501	-883201	3 4683676	1 0407346	0391402	806	9608598	55		
6	2773147	2794	7226853	3 6060121	886352	3 4645813	1 0408219	0392206	808	9607792	54		
7	2775941	2795	7224059	3 6023818	2889503	3 4608026	1 0409094	0393016	807	9606984	53		
8	2778736	2794	7221264	3 5987590	-892655	3 4570315	1 0409969	0393823	809	9606177	52		
9	2781530	-794	7218470	3 5951439	2895808	3 4532679	1 0410845	0394632	810	9605368	51		
10	2784324	2794	7215676	3 5915363	2898961	3 4495120	1 0411723	039544-	811	9604558	50		
11	2787118	-793	7212882	3 587936-	902114	3 4457635	1 0412601	0396252	811	9603746	49		
12	2789911	-793	7210089	3 5843431	2905269	3 4420226	1 0413481	0397063	812	9602937	48		
13	2792704	2793	7207296	3 5807586	2908423	3 4382891	1 0414362	0397875	813	9602125	47		
14	2795497	2793	7204503	3 5771810	2911578	3 4345631	1 0415243	0398688	813	9601312	46		
15	2798290	2793	7201710	3 5736108	2914734	3 4308446	1 0416126	0399501	815	9600499	45		
16	2801083	2792	7198917	3 5700481	2917890	3 4271334	1 0417009	0400316	815	9599684	44		
17	2803875	2792	7196125	3 5664928	2921047	3 4234297	1 0417894	0401131	816	9598869	43		
18	2806667	2792	7193333	3 5629448	2924205	3 4197333	1 0418780	0401947	817	9598053	42		
19	2809459	-792	7190541	3 5594042	2927363	3 4160443	1 0419667	0402764	818	9597236	41		
20	2812251	2791	7187749	3 5558710	2930521	3 4123626	1 0420554	0403582	818	9596418	40		
21	2815042	2791	7184958	3 5523450	2933680	3 4086882	1 0421443	0404400	819	9595600	39		
22	2817833	2791	7182167	3 5488263	2936839	3 4050210	1 0422333	0405219	820	9594781	38		
23	2820624	2791	7179376	3 5453149	2939999	3 4013612	1 0423221	0406039	821	9593961	37		
24	-823415	-790	7176585	3 5418107	2943160	3 3977085	1 0424116	0406860	822	9593140	36		
25	2826205	2790	7173795	3 5383138	2946321	3 3940631	1 0425009	0407682	822	9592318	35		
26	2828995	2790	7171005	3 5348240	2949483	3 3904491	1 0425903	0408504	824	9591496	34		
27	2831785	2790	7168215	3 5313414	2952645	3 3867938	1 0426798	0409328	824	9590672	33		
28	2834575	-789	7165425	3 5278660	2955808	3 3831699	1 0427694	0410152	825	9589848	32		
29	2837364	2789	7162636	3 5243977	2958971	3 3795531	1 0428591	0410977	826	9589023	31		
30	2840153	2789	7159847	3 5209365	2962135	3 3759434	1 0429489	0411803	826	9588197	30		
31	2842942	2789	7157058	3 5174824	-965-99	3 3723408	1 0430388	0412629	828	9587371	29		
32	2845731	2789	7154269	3 5140354	2968464	3 3687153	1 0431289	0413457	828	9586543	28		
33	2848520	2788	7151480	3 5105954	2971630	3 3651568	1 0432190	0414285	829	9585715	27		
34	2851308	788	7148692	3 5071625	2974796	3 3615753	1 0433092	0415114	830	9584886	26		
35	2854096	2788	7145904	3 5037365	2977962	3 3580008	1 0433995	0415944	830	9584056	25		
36	2856884	2787	7143116	3 5003175	2981129	3 3544333	1 0434900	0416774	832	9583226	24		
37	2859671	2787	7140329	3 4969055	2984297	3 3508728	1 0435805	0417606	832	9582394	23		
38	2862458	-788	713754-	3 4935004	2987465	3 3473191	1 0436712	0418438	833	9581562	22		
39	-865246	2786	7134754	3 49010-3	2990634	3 3437724	1 0437619	0419271	833	9580729	21		
40	2868032	2787	7131968	3 4867110	2993803	3 3402326	1 0438528	0420105	835	9579895	20		
41	2870819	-786	7129181	3 4833267	2996973	3 3366997	1 0439437	0420940	835	9579060	19		
42	2873605	2786	7126395	3 4799492	3000144	3 3331736	1 0440348	0421775	836	9578225	18		
43	2876391	2786	7123609	3 4765785	3003315	3 3296543	1 0441259	0422611	837	9577389	17		
44	2879177	2786	7120823	3 4732146	3006486	3 3261419	1 0442172	0423446	838	9576552	16		
45	2881963	2785	7118037	3 4698576	3009658	3 3226362	1 0443086	0424286	839	9575714	15		
46	2884748	2785	7115252	3 4665073	3012831	3 3191373	1 0444001	0425125	840	9574875	14		
47	2887533	2785	7112467	3 4631637	3016004	3 3156452	1 0444917	0425965	841	9574035	13		
48	2890318	2785	7109682	3 4598269	3019176	3 3121598	1 0445833	0426805	841	9573195	12		
49	2893103	2784	7106897	3 4564969	3022352	3 3086811	1 0446751	0427646	842	9572351	11		
50	2895887	2784	7104113	3 4531735	3025527	3 3052091	1 0447670	0428488	842	9571512	10		
51	2898671	2784	7101329	3 4498568	3028703	3 3017438	1 0448590	0429331	844	9570669	9		
52	2901455	2784	7098545	3 4465467	3031879	3 2982851	1 0449511	0430175	844	9569825	8		
53	2904239	2783	7095761	3 4432433	3035055	3 2948330	1 0450433	0431019	845	9568981	7		
54	2907022	2783	7092978	3 4399465	3038232	3 2913876	1 0451357	0431864	847	9568136	6		
55	2909805	2783	7090195	3 4366563	3041410	3 2879487	1 0452281	0432710	847	9567290	5		
56	2912588	2783	7087412	3 4333727	3044588	3 2845164	1 0453206	0433557	848	9566443	4		
57	2915371	2782	7084629	3 4300956	3047767	3 2810907	1 0454132	0434405	848	9565595	3		
58	2918153	2782	7081847	3 4268251	3050946	3 2776715	1 0455060	0435253	849	9564747	2		
59	2920935	2782	7079065	3 4235611	3054126	3 2742588	1 0455988	0436102	850	9563898	1		
60	2923717		7076283	3 4203036	3057307	3 2708526	1 0456918	0436952		9563048	0		
	Cofine	Diff	Verf.	Secant	Cotan	Tang	Cotec	Coverf	D	Sine			

16 Deg		LOG SINPS, &c										(281)
	Sine	Diff	Cotang	Verfied	Tang	Diff	Cotang	Coverl	Secant	D	Cofine	
0	94403381	4102	105596619	85681106	94574964	4766	105425036	98599560	100171584	362	99818416	60
1	94407784	1392	10559216	85590290	94579730	4761	105420270	98597884	100171946	363	99818054	59
2	94412182	1394	105587818	85899365	94584491	4757	105415509	98596206	100172309	363	99817691	58
3	94416576	1387	105583424	85908330	94589248	4753	105410752	9859459	100172672	364	99817328	57
4	94420965	1384	105579035	85917286	94594001	4748	105405999	98592851	100173036	364	99816964	56
5	94425349	1379	105574651	85926233	94598749	4743	105401251	98591172	100173400	364	99816600	55
6	94429728	1375	105570272	85935170	94603492	4740	105396508	98589492	100173764	365	99816236	54
7	94434103	1369	105565897	85944097	94608232	1735	105391768	98587813	100174129	365	99815871	53
8	94438472	1365	105561528	85953016	94612967	4730	105387033	98586132	100174494	366	99815506	52
9	94442837	1360	105557163	85961925	94617697	4726	105382303	98584452	100174860	366	99815140	51
10	94447197	1356	105552803	8597084	94622423	4722	105377577	98582770	100175226	366	99814774	50
11	94451553	1351	105548447	85979715	94627145	4718	105372855	98581089	100175592	367	99814408	49
12	94455904	1346	105544096	85988596	94631863	4713	105368137	98579406	100175959	367	99814041	48
13	94460250	1341	105539750	85997468	94636576	4709	105363424	9857773	100176326	368	99813674	47
14	94464591	1336	105535409	86006330	94641285	4705	105358715	98576040	100176694	368	99813306	46
15	94468927	1332	105531073	86015184	94645990	4700	105354010	98574356	100177062	369	99812938	45
16	94473259	1327	105526741	86024028	94650690	1696	105349310	98572672	100177431	369	99812569	44
17	94477586	1323	105522414	86032863	94655386	1692	105344611	98570987	100177799	370	99812201	43
18	94481909	1318	105518091	86041689	94660078	4687	105339922	98569302	100178169	370	99811831	42
19	94486227	1313	105513773	86050506	94664765	4683	105335235	98567616	100178538	371	9981146	41
20	94490540	1309	105509460	86059313	94669448	4679	105330552	98565929	100178908	371	99811092	40
21	94494849	1304	105505151	86068112	94674127	4675	105325873	9856424	100179279	371	99810721	39
22	94499153	1299	105500847	86076901	94678802	4671	105321198	98562555	100179649	372	99810351	38
23	94503452	1295	105496548	86085681	94683473	4666	1053165	98560867	100180021	372	99810079	37
24	94507747	1290	105492253	86094453	94688139	4662	105311861	98559179	100180392	372	99810708	36
25	94512037	1285	105487963	86103215	94692801	4658	105307199	98557490	100180764	373	99810336	35
26	94516322	1281	105483678	86111968	94697459	4653	105302541	98555800	100181137	373	99810863	34
27	94520603	1276	105479397	86120712	94702112	4650	105297888	98554110	100181510	373	99810490	33
28	94524879	127	105475121	86129448	9470676	4645	105293238	98552420	100181883	373	99810117	32
29	94529151	1261	105470849	86138174	94711407	4641	105288593	98550729	100182256	374	99810744	31
30	94533418	1263	105466582	86146891	94716048	4637	105283952	98549037	100182630	375	99810370	30
31	94537681	1258	105462319	86155600	94720685	4633	105279315	98547345	100183005	375	99810095	29
32	94541939	1253	105458061	86164299	94725318	4629	105274682	98545653	100183380	375	99810720	28
33	94546192	1249	105453808	86172990	94729947	1625	105270053	98543959	100183755	375	99810345	27
34	94550441	1245	105449559	8618167	94734572	4620	105265428	98542266	100184130	376	99810870	26
35	94554686	1240	105445314	86190345	9473919	4616	105260808	98540572	100184506	377	99810494	25
36	94558926	1235	105441074	86199009	94743808	4613	105256192	98538877	100184883	377	99810117	24
37	94563161	1231	105436839	86207664	94748421	4608	105251579	98537182	100185260	377	99810740	23
38	94567392	1226	105432608	86216311	94753029	4604	105246971	98535486	100185637	377	99810363	22
39	94571618	122	105428382	86224948	94757633	4600	105242367	98533790	100186014	378	99810086	21
40	94575810	1218	105424160	86233577	94762233	4596	105237767	98532094	100186392	378	99810708	20
41	94580058	1213	105419942	86242197	94766829	4592	105233171	98530396	100186771	379	99810329	19
42	94584271	1209	105415729	86250809	94771421	4588	105228579	98528699	100187150	379	99810850	18
43	94588480	1204	105411520	86259412	94776009	4583	105223991	98527001	100187529	380	99810471	17
44	94592684	1200	105407316	86268006	94780592	4580	105219408	98525302	100187909	380	99810091	16
45	94596884	1195	105403116	86276591	94785172	4576	105214828	98523603	100188289	380	99810711	15
46	94601079	1191	105398921	86285168	94789748	4571	105210252	98521903	100188669	381	99810331	14
47	94605270	1186	105394730	86293736	94794319	4568	105205681	98520203	100189050	381	99810850	13
48	94609451	1182	105390544	86302295	9479888	4564	105201113	98518502	100189431	382	99810469	12
49	94613636	1178	105386362	86310846	94803451	4560	105196549	98516800	100189813	382	99810087	11
50	94617816	1173	105382184	86319388	94808011	4555	105191989	98515099	100190195	382	99810705	10
51	94621989	1169	105378011	86327922	94812566	4552	105187434	98513396	100190577	383	99810323	9
52	94626158	1165	105373842	86336447	94817118	4548	105182882	98511693	100190960	383	99810840	8
53	9463033	1160	105369677	86344964	94821666	4544	105178334	98509990	100191343	384	99810457	7
54	94634483	1156	105365517	86353472	94826210	4540	105173790	98508286	100191727	384	99810073	6
55	94638639	1151	105361361	86361971	94830750	4536	105169250	98506582	100192111	384	99810689	5
56	94642790	1148	105357210	86370462	94835286	4532	105164714	98504877	100192495	385	99810305	4
57	94646938	1143	105353062	86378945	94839818	4528	105160182	98503171	100192880	385	99810820	3
58	94651081	1138	105348919	86387419	94844346	4524	105155654	98501465	100193265	386	99810435	2
59	94655219	1134	105344781	86395884	94848870	4520	105151130	98499759	100193651	386	99810051	1
60	94659353	1130	105340647	86404342	94853390		105146610	98498052	100194037		99810663	0
	Cofine	Diff	Secant	Coverl	Cotang	Diff	Tang	Verfied	Cotang	D	Sine	

17 Deg.		NATURAL SINES, &c								Tab. 10	
	Sine	Diff	Coverd	Colec	Tang	Cotang.	Secant	Veil.	D	Cofine	
0	2923717	2782	7076283	34203036	3057307	32708526	10456918	0436952		9563048	60
1	2926499	2781	7073501	34170526	3060488	32674599	10457848	0437803	851	9562197	59
2	2929280	2781	7070720	34138080	3063670	32640596	10458780	0438655	852	9561345	58
3	2932061	2781	7067939	34105699	3066852	32606728	10459712	0439508	853	9560492	57
4	2934842	2781	7065158	34073382	3070034	32572924	10460646	0440361	853	9559639	56
5	2937623	2780	7062377	34041130	3073218	32539184	10461581	0441215	854	9558785	55
6	2940403	2780	7059597	34008941	3076402	32505508	10462516	0442070	855	9557930	54
7	2943183	2780	7056817	33976816	3079586	32471895	10463453	0442926	856	9557074	53
8	2945963	2780	7054037	33944754	3082771	32438346	10464391	0443782	856	9556218	52
9	2948743	2779	7051257	33912755	3085957	32404860	10465330	0444639	857	9555361	51
10	2951522	2780	7048478	33880800	3089143	32371438	10466270	0445498	859	9554502	50
11	2954302	2779	7045698	33848948	3092330	32338075	10467211	0446357	859	9553643	49
12	2957081	2778	7042919	33817138	3095517	32304780	10468153	0447216	859	9552784	48
13	2959859	2779	7040141	33785391	3098705	32271546	10469096	0448077	861	9551923	47
14	2962638	2778	7037362	33753707	3101893	32238373	10470040	0448938	863	9551062	46
15	2965416	2778	7034584	33722084	3105083	32205263	10470986	0449801	863	9550209	45
16	2968194	2777	7031806	33690524	3108272	32172215	10471932	0450664	863	9549356	44
17	2970971	2778	7029029	33659026	3111462	32139228	10472879	0451527	865	9548503	43
18	2973749	2777	7026251	33627589	3114653	32106304	10473828	0452392	865	9547650	42
19	2976526	2777	7023474	33596214	3117845	32073440	10474777	0453257	867	9546797	41
20	2979303	2776	7020697	33564900	3121036	32040638	10475728	0454124	867	9545944	40
21	2982079	2777	7017921	33533647	3124229	32007897	10476679	0454991	868	9545091	39
22	2984856	2776	7015144	33502455	3127422	31975117	10477632	0455859	868	9544238	38
23	2987633	2776	7012368	33471324	3130616	31942598	10478586	0456727	870	9543385	37
24	2990409	2776	7009592	33440254	3133810	31910039	10479540	0457597	870	9542532	36
25	2993181	2775	7006816	33409244	3137005	31877510	10480496	0458467	871	9541679	35
26	2995959	2775	7004041	33378294	3140200	31845102	10481453	0459338	872	9540826	34
27	2998734	2775	7001266	33347405	3143396	31812724	10482411	0460210	873	9539973	33
28	3001509	2775	6998491	33316575	3146593	31780406	10483370	0461083	873	9539120	32
29	3004284	2774	6995716	33285805	3149790	31748147	10484330	0461956	874	9538267	31
30	3007058	2774	6992942	33255095	3152988	31715948	10485291	0462830	876	9537414	30
31	3009832	2774	6990168	33224444	3156186	31683808	10486253	0463706	876	9536561	29
32	3012606	2774	6987394	33193853	3159385	31651728	10487217	0464582	876	9535708	28
33	3015380	2773	6984620	33163320	3162585	31619706	10488181	0465458	878	9534855	27
34	3018153	2773	6981847	33132847	3165785	31587744	10489146	0466336	878	9534002	26
35	3020926	2773	6979074	33102432	3168986	31555840	10490113	0467214	879	9533149	25
36	3023699	2772	6976301	33072076	3172187	31523994	10491080	0468093	880	9532296	24
37	3026471	2773	6973529	33041778	3175389	31492207	10492049	0468973	881	9531443	23
38	3029244	2772	6970756	33011539	3178591	31460478	10493019	0469854	882	9530590	22
39	3032016	2772	6967984	32981357	3181794	31428807	10493989	0470736	882	9529737	21
40	3034788	2771	6965212	32951234	3184998	31397194	10494961	0471618	883	9528884	20
41	3037559	2772	6962441	32921168	3188202	31365639	10495934	0472501	884	9528031	19
42	3040331	2771	6959669	32891160	3191407	31334141	10496908	0473385	885	9527178	18
43	3043102	2770	6956898	32861209	3194613	31302701	10497883	0474270	886	9526325	17
44	3045872	2771	6954128	32831316	3197819	31271317	10498859	0475156	886	9525472	16
45	3048643	2770	6951357	32801479	3201025	31239991	10499836	0476042	887	9524619	15
46	3051413	2770	6948587	32771700	3204232	31208722	10500815	0476929	888	9523766	14
47	3054183	2770	6945817	32741977	3207440	31177509	10501794	0477817	889	9522913	13
48	3056953	2770	6943047	32712311	3210649	31146353	10502774	0478706	890	9522060	12
49	3059723	2769	6940277	32682702	3213858	31115254	10503756	0479596	890	9521207	11
50	3062492	2769	6937508	32653149	3217067	31084210	10504738	0480486	891	9520354	10
51	3065261	2769	6934739	32623652	3220278	31053223	10505722	0481377	892	9519501	9
52	3068030	2768	6931970	32594211	3223489	31022291	10506706	0482269	893	9518648	8
53	3070798	2768	6929202	32564825	3226700	30991416	10507692	0483162	894	9517795	7
54	3073566	2768	6926434	32535496	3229912	30960596	10508679	0484056	894	9516942	6
55	3076334	2768	6923666	32506222	3233125	30929831	10509667	0484950	896	9516089	5
56	3079102	2767	6920898	32477003	3236338	30899122	10510656	0485846	896	9515236	4
57	3081869	2767	6918131	32447840	3239552	30868468	10511646	0486742	897	9514383	3
58	3084636	2767	6915364	32418732	3242766	30837869	10512637	0487639	897	9513530	2
59	3087403	2767	6912597	32389678	3245981	30807325	10513629	0488536	899	9512677	1
60	3090170	2767	6909830	32360680	3249197	30776835	10514622	0489435	899	9511824	0
	Cofine	Diff	Veil	Secant	Cotan.	lang.	Colec.	Coverd	D	Sine	

Log SINES, &c												(283)
17 Deg	Sine	Diff	Cofec	Verfedf	Tang	Diff	Cotang	Coveif	Secant	D	Cofine	
0	94659353	4130	105340647	86404342	94853390	4517	105146610	98498052	10019403	386	99805963	60
1	94663483	4126	105336517	86412791	94857907	4512	105142093	98496344	100194423	386	99805571	59
2	94667609	4121	105332391	86421231	94862419	4509	105137581	98494636	100194810	387	99805190	58
3	94671730	4118	105328708	86429663	94866928	4505	105133072	98492928	100195197	388	99804803	57
4	94675848	4112	105324152	86438087	94871433	4500	105128567	98491219	100195585	388	99804415	56
5	94679960	4109	105320040	86446502	94875933	4497	105124067	98489509	100195973	388	99804027	55
6	94684069	4104	105315931	86454909	94880430	4494	105119570	98487799	100196361	388	99803639	54
7	94688173	4100	105311827	86463308	94884924	4489	105115076	98486088	100196750	389	99803250	53
8	94692273	4096	105307727	86471698	94889413	4485	105110587	98484377	100197140	390	99802860	52
9	94696369	4092	105303631	86480080	94893898	4482	105106102	98482665	100197529	389	99802471	51
10	94700461	4087	105299539	86488454	94898380	4478	105101620	98480953	100197919	390	99802081	50
11	94704548	4083	105295452	86496820	94902858	4474	105097142	98479240	100198310	391	99801690	49
12	94708631	4079	105291369	86505177	94907332	4470	105092668	98477527	100198701	391	99801299	48
13	94712710	4075	105287290	86513526	9491180	4467	105088198	98475813	100199092	391	99800908	47
14	94716785	4071	105283215	86521867	94916269	4462	105083731	98474099	100199484	392	99800516	46
15	94720856	4066	105279144	86530200	94920731	4459	105079269	98472384	100199876	392	99800124	45
16	94724922	4063	105275078	8653854	94925190	4456	105074810	98470669	100200268	392	99799732	44
17	94728985	4058	105271015	86546841	94929646	4451	105070354	98468953	100200661	393	99799339	43
18	94733043	4054	105266957	86555149	94934097	4448	105065903	98467237	100201054	393	99798946	42
19	94737097	4049	105262905	86563449	94938545	4443	105061455	98465520	100201448	394	99798552	41
20	94741146	4046	105258854	86571741	94942988	4441	105057012	98463802	10020184	394	99798158	40
21	94745192	4042	105254808	86580025	94947429	4436	105052571	98462084	100202236	394	99797764	39
22	94749234	4037	105250766	86588301	94951865	4433	105048135	98460366	100202631	395	99797369	38
23	94753271	4033	105246729	86596569	94956298	4429	105043702	98458647	10020302	396	99796973	37
24	94757304	4030	105242696	86604829	94960727	4425	105039273	98456927	100203422	395	9979658	36
25	94761334	4025	105238666	86613081	94965152	4422	105034848	98455207	100203818	396	9979618	35
26	94765359	4021	105234641	86621324	94969574	4417	105030426	98453487	100204215	397	99795785	34
27	94769380	4016	105230620	86629560	94973991	4415	105026009	98451766	100204612	397	99795388	33
28	94773396	4013	105226604	86637788	94978406	4410	105021594	98450044	100205009	398	99794991	32
29	94777410	4009	105222591	86646008	94982816	4407	105017184	98448322	100205407	398	99794593	31
30	94781418	4005	10521858	86654220	94987223	4403	105012777	98446599	100205805	399	99794195	30
31	94785433	4000	105214577	86662424	94991626	4400	105008374	98444876	100206204	398	99793796	29
32	94789423	3997	105210577	86670620	94996026	4396	105003974	9844315	100206602	400	99793398	28
33	94793420	3992	105206580	86678808	95000422	4392	104999578	98441428	100207002	399	99792998	27
34	94797412	3989	105202588	86686988	95004814	4389	104995186	98439703	100207401	401	99792599	26
35	94801401	3984	105198599	86695160	95009203	4385	104990797	98437978	100207802	400	99792198	25
36	94805385	3981	105194615	86703324	95013588	4381	104986412	98436252	10020820	401	99791798	24
37	94809366	3976	105190634	86711481	95017969	4378	104982031	98434526	100208603	401	99791397	23
38	94813342	3973	105186658	86719630	95022347	4374	104977653	98432799	100209004	402	99790996	22
39	94817315	3968	105182685	86727771	95026721	4371	104973279	98431072	100209406	402	99790594	21
40	94821283	3965	105178717	86735904	95031092	4367	104968908	98429344	100209808	403	99790192	20
41	94825248	3960	105174752	86744029	95035459	4363	104964541	98427615	100210211	403	99789789	19
42	94829208	3957	105170792	86752147	95039822	4360	104960178	98425886	100210614	403	99789386	18
43	94833165	3952	105166835	86760256	95044182	4356	104955818	98424157	100211017	404	99788983	17
44	94837117	3949	105162883	86768358	95048538	4353	104951462	98422427	100211421	404	99788579	16
45	94841066	3944	105158934	86776453	95052891	4349	104947109	98420696	100211825	405	99788175	15
46	94845010	3941	105154990	86784539	95057240	4346	104942760	98418965	100212230	405	99787770	14
47	94848951	3937	105151049	86792618	95061586	4342	104938414	98417233	100212635	405	99787365	13
48	94852888	3932	105147112	86800689	95065928	4339	104934072	98415501	100213040	406	99786960	12
49	94856820	3929	105143180	86808753	95070267	4335	104929733	98413768	100213446	406	99786554	11
50	94860749	3925	105139251	86816809	95074602	4331	104925398	98412035	100213852	407	99786148	10
51	94864674	3921	105135326	8682485	95078933	4328	104921067	98410301	100214259	407	99785741	9
52	94868595	3917	105131405	86832897	95083261	4325	104916739	98408567	100214666	407	99785334	8
53	9487251	3914	105127488	86840930	95087586	4321	104912414	98406832	100215073	408	99784927	7
54	94876426	3909	105123574	86848956	95091907	4317	104908093	98405097	100215481	408	99784519	6
55	94880335	3905	105119665	86856973	95096224	4315	104903776	98403361	100215889	409	99784111	5
56	94884240	3902	105115760	86864984	95100539	4310	104899461	98401625	100216298	409	9978370	4
57	94888142	3898	105111858	86872986	95104849	4307	104895151	98399888	100216707	410	99783293	3
58	94892040	3894	105107960	86880981	95109156	4304	104890844	98398150	100217117	409	99782883	2
59	94895934	3890	105104066	86888969	95113460	4300	104886540	98396412	100217526	411	99782474	1
60	94899824	3890	105100176	86896949	95117760		104882240	98394674	100217937		99782063	
	Cofine	Diff	Secant	Coveif	Cotang	Diff	Tang	Verfedf	Cofec	D	Sine	Deg

18 Deg.		NATURAL SINES, &c							Tab. 10	
	Sine	Diff	Coverf	Cofec.	Tang.	Cotang.	Secant	Verf.	D.	Cofine
0	3090170		6909830	3 2360680	3249197	3'0776835	1'0514612	0489435	899	9510565
1	3092936	2766	6907064	3 2331736	3252413	3'0746400	1'0515617	0490334	900	9509666
2	3095702	2766	6904298	3 2302846	3255630	3'0716020	1'0516612	0491234	901	9508766
3	3098468	2766	6901532	3 2274011	3258845	3'0685694	1'0517608	0492135	902	9507865
4	3101234	2766	6898766	3 2245230	3262066	3'0655421	1'0518606	0493037	903	9506963
5	3103999	2765	6896001	3 2216503	3265284	3'0625203	1'0519605	0493939	904	9506061
6	3106764	2765	6893236	3 2187830	3268504	3'0595038	1'0520604	0494843	905	9505157
7	3109529	2765	6890471	3 2159210	3271724	3'0564928	1'0521605	0495747	906	9504253
8	3112294	2765	6887706	3 2130644	3274944	3'0534870	1'0522607	0496652	907	9503348
9	3115058	2764	6884942	3 2102132	3278165	3'0504866	1'0523610	0497557	908	9502443
10	3117822	2764	6882178	3 2073673	3281387	3'0474915	1'0524614	0498464	909	9501536
11	3120586	2764	6879414	3 2045266	3284610	3'0445018	1'0525619	0499371	910	9500629
12	3123349	2763	6876651	3 2016913	3287833	3'0415173	1'0526625	0500279	911	9499721
13	3126112	2763	6873888	3 1988613	3291056	3'0385361	1'0527633	0501183	912	9498812
14	3128875	2763	6871125	3 1960365	3294281	3'0355641	1'0528641	0502098	913	9497902
15	3131638	2763	6868362	3 1932170	3297505	3'0325954	1'0529651	0503009	914	9496991
16	3134400	2762	6865600	3 1904028	3300731	3'0296320	1'0530661	0503920	915	9496080
17	3137163	2762	6862837	3 1875937	3303957	3'0266737	1'0531673	0504833	916	9495168
18	3139925	2762	6860075	3 1847899	3307184	3'0237207	1'0532686	0505745	917	9494255
19	3142686	2761	6857314	3 1819913	3310411	3'0207728	1'0533699	0506659	918	9493341
20	3145448	2761	6854552	3 1791978	3313639	3'0178301	1'0534714	0507574	919	9492426
21	3148209	2761	6851791	3 1764095	3316868	3'0148926	1'0535730	0508489	920	9491511
22	3150969	2760	6849031	3 1736264	3320097	3'0119603	1'0536747	0509405	921	9490595
23	3153730	2760	6846270	3 1708484	3323327	3'0090330	1'0537765	0510322	922	9489678
24	3156490	2760	6843510	3 1680756	3326557	3'0061169	1'0538785	0511240	923	9488760
25	3159250	2760	6840750	3 1653078	3329788	3'0031939	1'0539805	0512158	924	9487842
26	3162010	2760	6837990	3 1625452	3333020	3'0002820	1'0540826	0513078	925	9486922
27	3164770	2759	6835230	3 1597876	3336252	2'9973751	1'0541849	0513998	926	9486002
28	3167529	2759	6832471	3 1570351	3339485	2'9944734	1'0542873	0514919	927	9485081
29	3170288	2759	6829712	3 1542877	3342719	2'9915766	1'0543897	0515841	928	9484159
30	3173047	2758	6826953	3 1515453	3345953	2'9886850	1'0544923	0516763	929	9483237
31	3175805	2758	6824195	3 1488079	3349188	2'9857983	1'0545950	0517687	930	9482313
32	3178563	2758	6821437	3 1460756	3352424	2'9829167	1'0546978	0518611	931	9481389
33	3181321	2758	6818679	3 1433483	3355660	2'9800400	1'0548007	0519536	932	9480464
34	3184079	2757	6815921	3 1406259	3358896	2'9771683	1'0549037	0520462	933	9479538
35	3186836	2757	6813164	3 1379086	3362134	2'9743016	1'0550068	0521388	934	9478611
36	3189593	2757	6810407	3 1351962	3365372	2'9714399	1'0551101	0522316	935	9477684
37	3192350	2756	6807650	3 1324887	3368610	2'9685831	1'0552134	0523244	936	9476756
38	3195106	2756	6804894	3 1297862	3371850	2'9657312	1'0553169	0524173	937	9475827
39	3197863	2755	6802137	3 1270886	3375090	2'9628811	1'0554204	0525103	938	9474897
40	3200619	2755	6799381	3 1243959	3378330	2'9600422	1'0555241	0526034	939	9473966
41	3203374	2755	6796626	3 1217081	3381571	2'9572050	1'0556279	0526965	940	9473035
42	3206130	2755	6793870	3 1190152	3384813	2'9543727	1'0557318	0527897	941	9472103
43	3208885	2755	6791115	3 1163472	3388056	2'9515453	1'0558358	0528830	942	9471170
44	3211640	2755	6788360	3 1136740	3391299	2'9487227	1'0559399	0529764	943	9470236
45	3214395	2754	6785605	3 1110057	3394543	2'9459050	1'0560441	0530699	944	9469301
46	3217149	2754	6782851	3 1083422	3397787	2'9430921	1'0561485	0531634	945	9468366
47	3219903	2754	6780097	3 1056835	3401032	2'9402840	1'0562529	0532570	946	9467430
48	3222657	2754	6777343	3 1030296	3404278	2'9374807	1'0563575	0533507	947	9466493
49	3225411	2753	6774589	3 1003805	3407524	2'9346822	1'0564621	0534445	948	9465555
50	3228164	2753	6771836	3 0977363	3410771	2'9318885	1'0565669	0535384	949	9464616
51	3230917	2753	6769083	3 0950967	3414019	2'9290995	1'0566718	0536323	950	9463677
52	3233670	2753	6766330	3 0924620	3417267	2'9263152	1'0567768	0537264	951	9462736
53	3236422	2752	6763578	3 0898319	3420516	2'9235358	1'0568819	0538205	952	9461795
54	3239174	2752	6760826	3 0872066	3423765	2'9207610	1'0569871	0539146	953	9460854
55	3241926	2752	6758074	3 0845860	3427015	2'9179909	1'0570924	0540089	954	9459911
56	3244678	2751	6755322	3 0819702	3430266	2'9152256	1'0571978	0541032	955	9458968
57	3247429	2751	6752571	3 0793590	3433518	2'9124619	1'0573034	0541977	956	9458023
58	3250180	2751	6749820	3 0767525	3436770	2'9097089	1'0574090	0542922	957	9457078
59	3252931	2751	6747069	3 0741507	3440023	2'9069576	1'0575148	0543868	958	9456132
60	3255682	2751	6744318	3 0715535	3443276	2'9042109	1'0576207	0544814	959	9455186
Cofine	Diff	Verf.	Secant	Cotan	Tang	Cotec.	Coverf	D.	Sine	

18 Deg			Log Sines, &c										(285)		
	Sine	Diff	Cosec	Verfed	Tang	Diff	Cotang	Coverf	Secant	D	Cohne				
0	4899824	3886	10 5100176	8 6896949	9 5117760	4297	10 4882240	9 8394674	10 0217937	410	9 9784063	60			
1	4903710	3882	10 5096290	8 6904921	9 5122057	4294	10 4877943	9 8392935	10 0218347	410	9 9781653	59			
2	4907592	3879	10 5092408	8 6912886	9 5126351	4290	10 4873649	9 8391195	10 0218759	411	9 9781241	58			
3	4911471	3874	10 5088529	8 6920844	9 5130641	4286	10 4869359	9 8389455	10 0219170	411	9 9780830	57			
4	4915345	3871	10 5084655	8 6928794	9 5134927	4283	10 4865073	9 8387714	10 0219582	412	9 9780418	56			
5	4919216	3867	10 5080784	8 6936736	9 5139 10	4280	10 4860790	9 8385973	10 0219994	412	9 9780006	55			
6	4923083	3863	10 5076917	8 6944672	9 5143490	4276	10 4856510	9 8384231	10 0220407	413	9 9779593	54			
7	4926946	3860	10 5073054	8 6952599	9 5147766	4273	10 4852234	9 8382489	10 0220820	413	9 9779180	53			
8	4930806	3855	10 5069194	8 6960520	9 5152039	4270	10 4847961	9 8380746	10 0221234	414	9 9778766	52			
9	4934661	3852	10 5065339	8 6968432	9 5156309	4266	10 4843691	9 8379003	10 0221647	413	9 9778353	51			
10	4938513	3848	10 5061487	8 6976338	9 51605 5	4263	10 4839425	9 8377259	10 0222062	415	9 9777938	50			
11	4942361	3844	10 5057639	8 6984236	9 5164838	4259	10 4835162	9 8375515	10 0222477	415	9 9777523	49			
12	4946205	3841	10 5053795	8 6992127	9 5169097	4256	10 4830903	9 8373770	10 0222892	415	9 9777108	48			
13	4950046	3837	10 5049954	8 7000010	9 5173353	4253	10 4826647	9 8372024	10 0223307	415	9 9776693	47			
14	4953883	3833	10 5046117	8 7007886	9 5177606	4249	10 4822394	9 8370278	10 0223723	416	9 9776277	46			
15	4957716	3829	10 5042284	8 7015755	9 5181855	4246	10 4818145	9 8368532	10 0224140	417	9 9775860	45			
16	4961545	38 5	10 5038455	8 7023617	9 5186101	4243	10 4813899	9 8366785	10 0224556	416	9 9775444	44			
17	4965370	3822	10 5034630	8 7031471	9 5190344	4239	10 4809656	9 8365031	10 0224974	418	9 9775026	43			
18	4969192	3818	10 5030808	8 7039318	9 5194583	4236	10 480541	9 8363289	10 0225391	417	9 9774609	42			
19	4973010	3814	10 5026990	8 7047158	9 5198819	4233	10 4801181	9 8361540	10 0225809	418	9 9774191	41			
20	4976824	3811	10 50 3176	8 7054990	9 520305	4230	10 4796948	9 8359791	10 0226228	419	9 9773772	40			
21	4980635	3807	10 5019365	8 7062815	9 5207282	4226	10 4792718	9 8358041	10 0226646	418	9 9773354	39			
22	4984442	3803	10 5015558	8 7070633	9 5211508	4222	10 4788492	9 8356291	10 0227066	420	9 9772934	38			
23	4988245	3800	10 5011755	8 7078444	9 5215730	4220	10 4784270	9 8354540	10 0227485	419	9 9772515	37			
24	4992045	3795	10 5007955	8 7086247	9 5219950	4216	10 4780050	9 8352789	10 0227905	410	9 9772095	36			
25	4995840	3793	10 5004160	8 7094044	9 5224166	4213	10 4775834	9 8351037	10 0228326	421	9 9771674	35			
26	4999633	3788	10 5000367	8 7101833	9 5228379	4210	10 4771621	9 8349285	10 02 8747	421	9 9771253	34			
27	50034 1	3785	10 4996579	8 7109615	9 5232589	4206	10 4767411	9 8347532	10 0229168	421	9 9770832	33			
28	5007206	3781	10 4992794	8 7117390	9 5236795	4204	10 4763205	9 8345778	10 0229590	422	9 9770410	32			
29	5010987	3777	10 4989013	8 71 5157	9 5240999	4200	10 4759001	9 8344024	10 0230012	422	9 9769988	31			
30	5014764	3774	10 4985236	8 7132918	9 5245199	4196	10 4754801	9 8342269	10 0230434	422	9 9769566	30			
31	5018538	3770	10 4981462	8 7140671	9 5249395	4194	10 4750605	9 8340514	10 0230857	423	9 9769143	29			
32	5022308	3767	10 4977692	8 7148418	9 5253589	4190	10 4746411	9 8338759	10 0231280	423	9 9768720	28			
33	5026075	3763	10 4973925	8 7156157	9 5257779	4187	10 474221	9 8337002	10 0231704	424	9 9768296	27			
34	5029838	3759	10 4970162	8 7163889	9 5261966	4184	10 4738034	9 8335246	10 0232128	424	9 9767872	26			
35	5033597	3756	10 4966403	8 7171614	9 5266150	4181	10 4733850	9 8333488	10 0232553	425	9 9767448	25			
36	5037353	3752	10 4962647	8 717933	9 5270331	4177	10 4729669	9 8331731	10 0232978	425	9 9767024	24			
37	5041105	3748	10 4958895	8 7187044	9 5274508	4174	10 4725492	9 8329972	10 0233403	426	9 9766597	23			
38	5044853	3745	10 4955147	8 7194748	9 5278682	4171	10 4721318	9 8328213	10 0233829	426	9 9766171	22			
39	5048598	3741	10 4951402	8 7202445	9 5282853	4168	10 4717147	9 8326454	10 0234255	426	9 9765745	21			
40	5052339	3738	10 4947661	8 7210135	9 5287021	4165	10 4712979	9 8324694	10 0234682	427	9 9765318	20			
41	5056077	3734	10 4943923	8 7217818	9 5291186	4161	10 4708814	9 8322933	10 0235109	427	9 9764891	19			
42	5059811	3731	10 4940181	8 7225494	9 5295347	4158	10 4704653	9 8321172	10 0235536	428	9 9764464	18			
43	5063542	3717	10 4936458	8 7233163	9 5299505	4156	10 4700495	9 8319411	10 0235964	428	9 9764036	17			
44	5067269	3723	10 4932731	8 7240825	9 5303661	4152	10 4696339	9 8317649	10 0236392	429	9 9763608	16			
45	5070992	3720	10 4929008	8 7248480	9 5307813	4148	10 4692187	9 8315886	10 0236821	429	9 9763179	15			
46	5074712	3716	10 4925288	8 7256129	9 5311961	4146	10 4688039	9 8314123	10 0237250	429	9 9762750	14			
47	5078438	3713	10 4921572	8 7263770	9 5316107	4143	10 4683893	9 8312359	10 0237679	430	9 9762321	13			
48	5082141	3709	10 4917859	8 7271404	9 5320250	4139	10 4679750	9 8310595	10 0238109	430	9 9761891	12			
49	5085850	3706	10 4914150	8 7279032	9 5324389	4137	10 4675611	9 8308830	10 0238539	431	9 9761461	11			
50	5089556	3702	10 4910444	8 7286653	9 5328526	4133	10 4671474	9 8307064	10 0238970	431	9 9761030	10			
51	5093258	3698	10 4906742	8 7294267	9 5332659	4130	10 4667341	9 8305299	10 0239401	432	9 9760599	9			
52	5096956	3695	10 4903044	8 7301874	9 5336789	4127	10 4663211	9 8303532	10 0239833	431	9 9760167	8			
53	5100651	369	10 4899349	8 7309474	9 5340916	4124	10 4659084	9 8301765	10 0240264	433	9 9759736	7			
54	5104343	3688	10 4895657	8 7317067	9 5345040	4121	10 4654960	9 8299997	10 024069	433	9 9759303	6			
55	5108031	3685	10 4891969	8 7324654	9 5349161	4117	10 4650839	9 8298229	10 0241130	433	9 9758870	5			
56	5111716	3681	10 4888284	8 7332233	9 5353278	4115	10 4646722	9 8296461	10 0241563	433	9 9758437	4			
57	5115397	3677	10 4884603	8 7339806	9 5357393	4112	10 4642607	9 8294692	10 0241996	434	9 9758004	3			
58	5119074	3675	10 4880926	8 7347373	9 5361505	4108	10 4638495	9 8292922	10 0242430	435	9 9757570	2			
59	5122749	3670	10 4877251	8 7354932	9 5365613	4106	10 4634381	9 8291152	10 0242865	434	9 9757135	1			
60	5126419		10 4873581	8 7362485	9 5369719		10 4630281	9 8289381	10 0243299		9 9756701	0			
	Cohne	Diff	Secant	Coverf	Cotang	Diff	Tang	Verfed	Cosec	D	Sine				

19 Deg.		NATURAL SINES, &c.								Tab. 10	
1	Sine	Dif.	Coverf.	Cofec.	Tang.	Cotang.	Secant	Verf.	D.	Cofine	1
0	3255682	2750	6744318	3 0715535	3443276	2 9042109	1 0576207	0544814	948	9455186	60
1	3258432	2750	6741568	3 0689610	3446530	2 9014688	1 0577267	0545762	948	9454238	59
2	3261182	2750	6738818	3 0663731	3449785	2 8987314	1 0578328	0546710	948	9453290	58
3	3263932	2749	6736068	3 0637898	3453040	2 8959986	1 0579390	0547659	949	9452341	57
4	3266681	2749	6733319	3 0612111	3456296	2 8932704	1 0580453	0548609	950	9451391	56
5	3269430	2749	6730570	3 0586370	3459553	2 8905467	1 0581517	0549559	950	9450441	55
6	3272179	2749	6727821	3 0560675	3462810	2 8878277	1 0582583	0550511	952	9449492	54
7	3274928	2748	6725072	3 0535026	3466068	2 8851132	1 0583649	0551463	952	9448543	53
8	3277676	2748	6722324	3 0509423	3469327	2 8824033	1 0584717	0552416	953	9447594	52
9	3280424	2748	6719576	3 0483864	3472586	2 8796979	1 0585786	0553370	954	9446645	51
10	3283172	2748	6716828	3 0458352	3475846	2 8769970	1 0586855	0554325	955	9445696	50
11	3285919	2747	6714081	3 0432884	3479107	2 8743007	1 0587926	0555280	955	9444747	49
12	3288666	2747	6711334	3 0407462	3482368	2 8716088	1 0588999	0556236	956	9443798	48
13	3291413	2747	6708587	3 0382084	3485630	2 8689215	1 0590072	0557193	957	9442849	47
14	3294160	2746	6705840	3 0356752	3488893	2 8662386	1 0591146	0558151	958	9441900	46
15	3296906	2746	6703094	3 0331464	3492156	2 8635602	1 0592221	0559110	959	9440951	45
16	3299653	2747	6700347	3 0306221	3495420	2 8608863	1 0593298	0560069	959	9439993	44
17	3302398	2747	6697602	3 0281023	3498685	2 8582168	1 0594376	0561029	960	9439044	43
18	3305144	2746	6694856	3 0255868	3501950	2 8555517	1 0595454	0561990	961	9438095	42
19	3307889	2745	6692111	3 0230759	3505216	2 8528911	1 0596534	0562952	962	9437146	41
20	3310634	2745	6689366	3 0205693	3508483	2 8502319	1 0597615	0563915	963	9436197	40
21	3313379	2745	6686621	3 0180679	3511750	2 8475831	1 0598697	0564878	963	9435248	39
22	3316123	2744	6683877	3 0155694	3515018	2 8449356	1 0599781	0565843	965	9434299	38
23	3318867	2744	6681133	3 0130760	3518287	2 8422926	1 0600865	0566808	965	9433350	37
24	3321611	2744	6678389	3 0105870	3521556	2 8396539	1 0601951	0567773	965	9432401	36
25	3324355	2743	6675645	3 0081024	3524826	2 8370196	1 0603037	0568740	967	9431452	35
26	3327098	2743	6672902	3 0056221	3528096	2 8343896	1 0604125	0569707	967	9430503	34
27	3329841	2743	6670159	3 0031462	3531368	2 8317639	1 0605214	0570676	969	9429554	33
28	3332584	2743	6667416	3 0006746	3534640	2 8291426	1 0606304	0571645	969	9428605	32
29	3335326	2742	6664674	2 9982073	3537912	2 8265256	1 0607395	0572614	969	9427656	31
30	3338069	2743	6661931	2 9957443	3541186	2 8239129	1 0608487	0573585	971	9426707	30
31	3340810	2741	6659190	2 9932856	3544460	2 8213045	1 0609580	0574556	971	9425758	29
32	3343552	2742	6656448	2 9908312	3547734	2 8187003	1 0610675	0575529	973	9424809	28
33	3346293	2741	6653707	2 9883811	3551010	2 8161004	1 0611770	0576502	973	9423860	27
34	3349034	2741	6650966	2 9859352	3554286	2 8135048	1 0612867	0577475	973	9422911	26
35	3351775	2741	6648225	2 9834936	3557562	2 8109134	1 0613965	0578450	975	9421962	25
36	3354516	2741	6645484	2 9810563	3560840	2 8083263	1 0615064	0579425	975	9421013	24
37	3357256	2740	6642744	2 9786231	3564118	2 8057433	1 0616164	0580402	977	9420064	23
38	3359996	2740	6640004	2 9761942	3567397	2 8031646	1 0617265	0581379	977	9419115	22
39	3362735	2739	6637265	2 9737695	3570676	2 8005901	1 0618367	0582356	977	9418166	21
40	3365475	2740	6634525	2 9713490	3573956	2 7980198	1 0619471	0583335	979	9417217	20
41	3368214	2739	6631786	2 9689327	3577237	2 7954537	1 0620575	0584314	979	9416268	19
42	3370953	2739	6629047	2 9665205	3580518	2 7928917	1 0621681	0585295	981	9415319	18
43	3373691	2738	6626309	2 9641125	3583801	2 7903339	1 0622788	0586276	981	9414370	17
44	3376429	2738	6623571	2 9617087	3587083	2 7877780	1 0623896	0587257	983	9413421	16
45	3379167	2738	6620833	2 9593090	3590367	2 7852307	1 0625005	0588240	983	9412472	15
46	3381905	2738	6618095	2 9569135	3593651	2 7826853	1 0626115	0589223	983	9411523	14
47	3384642	2737	6615358	2 9545221	3596936	2 7801440	1 0627227	0590207	984	9410574	13
48	3387379	2737	6612621	2 9521348	3600222	2 7776069	1 0628339	0591192	985	9409625	12
49	3390116	2736	6609884	2 9497516	3603508	2 7750738	1 0629453	0592178	987	9408676	11
50	3392852	2736	6607148	2 9473725	3606795	2 7725448	1 0630568	0593165	987	9407727	10
51	3395589	2737	6604411	2 9449975	3610082	2 7700199	1 0631684	0594152	988	9406778	9
52	3398325	2736	6601675	2 9426265	3613371	2 7674990	1 0632801	0595140	989	9405829	8
53	3401060	2735	6598940	2 9402597	3616660	2 7649822	1 0633919	0596129	990	9404880	7
54	3403796	2735	6596204	2 9378968	3619949	2 7624695	1 0635038	0597119	990	9403931	6
55	3406531	2735	6593469	2 9355380	3623240	2 7599608	1 0636158	0598109	992	9402982	5
56	3409265	2734	6590735	2 9331833	3626531	2 7574561	1 0637280	0599101	992	9402033	4
57	3412000	2735	6588000	2 9308326	3629823	2 7549554	1 0638403	0600093	993	9401084	3
58	3414734	2734	6585266	2 9284858	3633115	2 7524588	1 0639527	0601086	993	9400135	2
59	3417468	2734	6582532	2 9261431	3636408	2 7499661	1 0640652	0602079	995	9399186	1
60	3420201	2733	6579799	2 9238044	3639702	2 7474774	1 0641778	0603074	995	9398237	0
Cofine		Dif.	Verf.	Secant	Cotan.	Tang.	Cofec.	Coverf.	D.	Sine	1

10 Deg		Log Sines, &c										(287)	
Sine	Dist	Cofec	Veriedf	Tang	Diff	Cotang	Coverf	Secant	D	Cofine			
09 5126419	3667	10 4873581	8 7362485	9 5369719	4102	10 4630281	9 8289381	10 0243299		9 9756701	10		
19 5130086	3664	10 4869914	8 7370030	9 5373821	4099	10 4626179	9 8287609	10 0243735	436	9 9756265	59		
29 5133750	3660	10 4866250	8 7377570	9 5377920	4097	10 4622080	9 8 85837	10 0244170	435	9 9755830	58		
39 5137414	3657	10 4862590	8 738510	9 538 017	4093	10 4617983	9 8284065	10 0244606	436	9 9755394	57		
49 5141067	3654	10 4858933	8 739 628	9 5386110	4090	10 4613890	9 8 8 292	10 0245043	437	9 9754957	56		
59 51447 1	3650	10 4855279	8 7400147	9 5390200	4087	10 4609800	9 8280518	10 0245479	436	9 9754521	55		
69 5148371	3646	10 4851629	8 7407659	9 5394287	4084	10 4605713	9 8 78744	10 0245917	438	9 9754083	54		
79 5152017	3643	10 4847983	8 7415165	9 5398371	4082	10 4601629	9 8 76970	10 0 46354	437	9 9753646	53		
89 5155660	3640	10 4844340	8 742 664	9 5402453	4078	10 4597547	9 8275194	10 0 4679	438	9 9753208	52		
99 5159300	3636	10 4840700	8 7430156	9 5406531	4075	10 4593469	9 8273419	10 0 47231	439	9 9752769	51		
109 5162936	3633	10 4837064	8 743764	9 5410606	4072	10 4589394	9 8271642	10 0247670	439	9 9752330	50		
119 5166569	36 9	10 4833431	8 74451 1	9 5414678	4069	10 4585322	9 8269866	10 0248109	439	9 9751891	49		
129 5170176	3626	10 4829872	8 7452593	9 5418 47	4066	10 4581253	9 8 68088	10 0248549	440	9 9751451	48		
139 51738 4	3623	10 48 6176	8 7460059	9 5422812	4064	10 4577187	9 8266310	10 0248989	440	9 9751011	47		
149 5177447	3619	10 4822553	8 7467518	9 5426877	4060	10 4573123	9 8264532	10 0249430	441	9 9750570	46		
159 5181066	3616	10 4818934	8 7474971	9 5430937	4057	10 4569063	9 8 62753	10 0249871	441	9 9750129	45		
169 518468	3613	10 4815318	8 7482417	9 5434994	4054	10 4565006	9 8260973	10 0250312	441	9 9749685	44		
179 5188 95	3609	10 4811705	8 7489857	9 5439018	4052	10 4560952	9 8 59193	10 0 50751	44	9 9749246	43		
189 5191904	3606	10 4808096	8 7497290	9 5443100	4048	10 4556900	9 8257112	10 0251196	44	9 9748801	42		
199 5195510	360	10 4804490	8 7504716	9 5447148	4045	10 455285	9 8255631	10 0251639	443	9 9748361	41		
209 5199112	3599	10 4800888	8 7512136	9 5451193	4043	10 4548807	9 8 53849	10 0252082	443	9 9747918	40		
219 5202711	3596	10 4797 89	8 7519549	9 5455 36	4040	10 4544764	9 8 52067	10 0252525	443	9 9747475	39		
229 5206307	3592	10 4793693	8 75 6956	9 5459276	4036	10 4540724	9 8250 84	10 0252969	444	9 9747031	38		
239 5209899	3589	10 4790101	8 7534357	9 5463312	4034	10 4536688	9 8248501	10 0253413	444	9 9746587	37		
249 5213488	3586	10 4786512	8 7541751	9 5467346	4031	10 453 654	9 8246717	10 0253858	445	9 974614	36		
259 5217071	3582	10 4782926	8 7549138	9 5471377	4028	10 45 86 3	9 8244932	10 0 54303	445	9 9745697	35		
269 5220656	3579	10 4779344	8 7556519	9 5475405	40 5	10 45 4595	9 8243117	10 0254746	445	9 9745252	34		
279 5224235	3576	10 4775765	8 7563894	9 5479430	4022	10 45 0570	9 8241362	10 0255194	446	9 9744806	33		
289 5227811	3572	10 4772189	8 7571 62	9 5483452	4019	10 4516 18	9 8239576	10 0255641	447	9 9744359	32		
299 5231383	3570	10 4768617	8 7578623	9 5487471	4016	10 45125 9	9 8237789	10 0 56087	447	9 9743913	31		
309 5234953	3565	10 4765047	8 75859 9	9 5491487	4013	10 4508513	9 8 36002	10 0256534	447	9 9743466	30		
319 5238518	3563	10 4761482	8 75933 7	9 5495500	4011	10 4504500	9 8234214	10 0256982	448	9 9 43018	29		
329 5242081	3559	10 4757919	8 7600670	9 5499511	4008	10 4500489	9 8 32425	10 0 57130	448	9 9742570	28		
339 5245640	3556	10 4754360	8 7608006	9 5503519	4004	10 4496431	9 8230636	10 0257876	448	9 9742122	27		
349 5249196	3553	10 4750804	8 7615336	9 5507523	4002	10 4492477	9 8228847	10 0258321	449	9 9741673	26		
359 5 52719	3549	10 4747251	8 7622659	9 5511525	3999	10 4488475	9 8227057	10 0 58776	449	9 9741225	25		
369 5256298	3546	10 4743707	8 7629976	9 5515524	3997	10 4484476	9 8 5266	10 0 59226	450	9 9740771	24		
379 5259844	3543	10 4740156	8 7637286	9 5519521	3993	10 4480479	9 82 3475	10 0259676	450	9 9740323	23		
389 5263387	3540	10 4736613	8 7644591	9 55 3514	3990	10 4476486	9 8221684	10 0260127	451	9 9739873	22		
399 5266927	3536	10 4733073	8 7651889	9 5527504	3988	10 4472496	9 8219891	10 0260578	451	9 9739422	21		
409 5270463	3531	10 4729537	8 7659180	9 5531492	3985	10 4468508	9 8218099	10 0 61029	451	9 9738971	20		
419 5273997	3527	10 47 6003	8 7666466	9 5535477	398	10 4464523	9 8216305	10 0261481	452	9 9738519	19		
429 5277526	3524	10 4722174	8 7673745	9 5539459	3979	10 4460541	9 8 14511	10 0261933	452	9 9738067	18		
439 5281053	35 4	10 4718917	8 7681018	9 5543438	3977	10 445656	9 821 717	10 0 62385	453	9 9737615	17		
449 5284577	35	10 47151 3	8 7688284	9 5547415	3973	10 4452585	9 8210922	10 0262838	453	9 9737162	16		
459 5288097	3517	10 4711903	8 7695544	9 5551388	3971	10 4448611	9 8 09126	10 0263 91	454	9 9736709	15		
469 5291611	3514	10 4708386	8 7702798	9 5555359	3968	10 4444611	9 8207330	10 0 63 45	454	9 9736255	14		
479 5295128	3510	10 4704872	8 7710046	9 5559327	3965	10 44406 3	9 8 05533	10 0264199	455	9 9735801	13		
489 5298648	3508	10 4701362	8 7717 88	9 5563 92	3963	10 4436 08	9 8203736	10 0264654	455	9 9735346	12		
499 5302146	3504	10 4697854	8 77 4523	9 5567255	3959	10 4432 15	9 8 01936	10 0265109	456	9 9734891	11		
509 5305650	3501	10 4694350	8 7731752	9 5571214	3957	10 4428186	9 8200140	10 0265565	456	9 9734435	10		
519 5309151	3498	10 4690849	8 7738975	9 5575171	3954	10 44 4829	9 8198341	10 0266020	457	9 9733980	9		
529 5312649	3494	10 4687351	8 7746192	9 5579125	3952	10 4420815	9 8196542	10 0266477	457	9 9733523	8		
539 5316143	3492	10 4683857	8 7753403	9 5583077	3948	10 4416923	9 8194742	10 0266933	457	9 9733067	7		
549 5319635	3488	10 4680365	8 7760607	9 5587025	3946	10 44129 5	9 8192941	10 0267390	458	9 9732610	6		
559 5323123	3485	10 4676877	8 7767805	9 5590971	3943	10 4409029	9 8191140	10 0267848	458	9 9732157	5		
569 5326608	3482	10 4673392	8 7774997	9 5594914	3940	10 4405086	9 8189338	10 0268306	458	9 9731694	4		
579 5330090	3479	10 4669910	8 7782183	9 5598851	3938	10 4401146	9 8187536	10 0268764	459	9 9731236	3		
589 5333569	3475	10 4666431	8 7789363	9 5602797	3933	10 4397208	9 8185733	10 0269223	459	9 9730777	2		
599 5337041	3473	10 4662956	8 779653	9 5606727	5932	10 4393 73	9 8183930	10 0269682	460	9 9730318	1		
609 5340517		10 4659481	8 7803705	9 5610659		10 4389341	9 818 126	10 027014		9 9729858	0		
Cofine	Dist	Secant	Coverf	Cotang	Diff	Tang	Veriedf	Cofec	D	Sine			

20 Deg.		NATURAL SINES, &c.							Tab. 10	
Sine	Diff	Coverl	Cofec.	Tang	Cotang	Secant	Verl.	Diff	Cofine	
0 3440201	2734	6579799	29238044	3639702	2 7474174	1 0641778	0603074	995	9396926	60
1 3422935	-733	6577065	2 9214697	3642997	2 7449927	1 0642905	0604069	996	9395931	59
2 3425660	2732	6574332	2 9191389	3646292	2 7425120	1 0644033	0605065	997	9394935	58
3 3428400	2733	6571600	2 9168121	3649588	2 7400352	1 0645163	0606062	998	9393938	57
4 3431133	2732	6568867	2 9144892	3652885	2 7375623	1 0646294	0607060	998	9392940	56
5 3433865	2732	6566135	2 9121703	3656182	2 7350934	1 0647425	0608058	999	9391942	55
6 3436597	2732	6563403	2 9098553	3659480	2 7326284	1 0648558	0609057	999	9390943	54
7 3439329	2731	6560671	2 9075443	3662779	2 7301674	1 0649693	0610058	1000	9389942	53
8 3442060	2731	6557940	2 9052372	3666079	2 7277102	1 0650828	0611058	1002	9388942	52
9 3444791	730	6555209	2 9029339	3669379	2 7252569	1 0651964	0612060	1002	9387940	51
10 3447521	-731	6552479	2 9006346	3672680	2 7228076	1 0653102	0613062	1002	9386938	50
11 3450253	-730	6549748	2 8983391	3675981	2 7203620	1 0654240	0614066	1004	9385934	49
12 3452985	2730	6547018	2 8960475	3679284	2 7179204	1 0655380	0615070	1005	9384929	48
13 3455712	-729	6544288	2 8937598	3682587	2 7154826	1 0656521	0616075	1005	9383925	47
14 3458441	2730	6541559	2 8914760	3685890	2 7130487	1 0657663	0617080	1007	9382920	46
15 3461171	2729	6538829	2 8891960	3689195	2 7106186	1 0658807	0618087	1007	9381913	45
16 3463900	2728	6536100	2 8869198	3692500	2 7081923	1 0659951	0619094	1008	9380906	44
17 3466628	2728	6533372	2 8846474	3695806	2 7057699	1 0661097	0620102	1009	9379898	43
18 3469357	2728	6530643	2 8823789	3699112	2 7033513	1 0662243	0621111	1009	9378889	42
19 3472085	2727	6527915	2 8801142	3702420	2 7009364	1 0663391	0622120	1011	9377880	41
20 3474812	2728	6525188	2 8778532	3705728	2 6985254	1 0664540	0623131	1011	9376869	40
21 3477540	-727	6522460	2 8755961	3709036	2 6961181	1 0665690	0624142	1012	9375858	39
22 3480267	2727	6519733	2 8733428	3712346	2 6937147	1 0666842	0625154	1013	9374840	38
23 3482994	2726	6517006	2 8710937	3715656	2 6913149	1 0667994	0626167	1013	9373833	37
24 3485720	2727	6514280	2 8688474	3718967	2 6889190	1 0669148	0627180	1014	9372820	36
25 3488447	2726	6511553	2 8666053	3722278	2 6865267	1 0670302	0628194	1016	9371806	35
26 3491173	2725	6508827	2 8643670	3725590	2 6841383	1 0671458	0629210	1016	9370790	34
27 3493898	2725	6506102	2 8621324	3728903	2 6817535	1 0672615	0630226	1016	9369774	33
28 3496624	2725	6503376	2 8599015	3732217	2 6793725	1 0673774	0631242	1018	9368758	32
29 3499349	2725	6500651	2 8576744	3735532	2 6769951	1 0674933	0632260	1018	9367740	31
30 3502074	2724	6497926	2 8554510	3738847	2 6746215	1 0676094	0633278	1019	9366722	30
31 3504798	2725	6495202	2 8532312	3742163	2 6722516	1 0677255	0634297	1020	9365703	29
32 3507523	2723	6492477	2 8510152	3745479	2 6698853	1 0678418	0635317	1021	9364683	28
33 3510246	2724	6489754	2 8488028	3748797	2 6675227	1 0679582	0636336	1021	9363662	27
34 3512970	2723	6487030	2 8465941	3752115	2 6651638	1 0680747	0637359	1023	9362641	26
35 3515693	2723	6484307	2 8443891	3755433	2 6628085	1 0681914	0638382	1023	9361618	25
36 3518416	2723	6481584	2 8421877	3758753	2 6604569	1 0683081	0639405	1024	9360595	24
37 3521139	2723	6478861	2 8399899	3762073	2 6581089	1 0684250	0640429	1024	9359571	23
38 3523862	2722	6476138	2 8377958	3765394	2 6557645	1 0685420	0641453	1026	9358547	22
39 3526584	2722	6473416	2 8356054	3768716	2 6534238	1 0686591	0642479	1026	9357521	21
40 3529306	2721	6470694	2 8334185	3772038	2 6510867	1 0687773	0643505	1027	9356495	20
41 3532027	2721	6467973	2 8312353	3775361	2 6487531	1 0688936	0644532	1028	9355468	19
42 3534748	2721	6465252	2 8290556	3778685	2 6464232	1 0690110	0645560	1028	9354440	18
43 3537469	2721	6462531	2 8268796	3782010	2 6440969	1 0691286	0646588	1030	9353412	17
44 3540190	2720	6459810	2 8247071	3785335	2 6417741	1 0692463	0647618	1030	9352382	16
45 3542910	2720	6457090	2 8225382	3788661	2 6394549	1 0693641	0648648	1031	9351352	15
46 3545630	2720	6454370	2 8203729	3791988	2 6371392	1 0694820	0649679	1032	9350321	14
47 3548350	2720	6451650	2 8182111	3795315	2 6348271	1 0696000	0650711	1033	9349289	13
48 3551070	2719	6448930	2 8160529	3798644	2 6325186	1 0697182	0651743	1034	9348257	12
49 3553789	2719	6446211	2 8138982	3801973	2 6302136	1 0698364	0652777	1034	9347223	11
50 3556508	2718	6443492	2 8117471	3805302	2 6279121	1 0699548	0653811	1035	9346189	10
51 3559226	2718	6440774	2 8095995	3808633	2 6256141	1 0700733	0654846	1035	9345154	9
52 3561944	2718	6438056	2 8074554	3811964	2 6233196	1 0701919	0655881	1037	9344119	8
53 3564662	2718	6435333	2 8053148	3815296	2 6210286	1 0703106	0656918	1037	9343082	7
54 3567380	2717	6432620	2 8031777	3818629	2 6187411	1 0704295	0657955	1038	9342045	6
55 3570097	2717	6429903	2 8010441	3821962	2 6164571	1 0705484	0658993	1039	9341007	5
56 3572814	2717	6427186	2 7989140	3825296	2 6141766	1 0706675	0660032	1040	9339968	4
57 3575531	2717	6424469	2 7967873	3828631	2 6118995	1 0707867	0661072	1040	9338928	3
58 3578248	2716	6421752	2 7946641	3831967	2 6096259	1 0709060	0662112	1040	9337888	2
59 3580964	-715	6419036	2 7925444	3835303	2 6073558	1 0710254	0663154	1041	9336846	1
60 3583679		6416321	2 7904281	3838640	2 6050891	1 0711450	0664196	1041	9335804	0
Cofine	Diff	Verl.	Secant	Cotang.	Tang.	Cofec	Coverl	Diff	Sine	

10 Deg		LOG SINES, &c										(286)
Sine	Diff.	Cofec	Verfedf	Tang	Diff.	Cotang	Coverf	Secant	D	Cofine		
09 5340517	3469	10 4659483	8 7803705	9 5610659	38949	10 4389341	9 8182126	10 0270142	460	9 9729858	60	
19 5343986	3466	10 4656014	8 7810866	9 5614588	3927	10 4385412	9 8180322	10 0270602	460	9 9729398	59	
29 5347452	3463	10 4652548	8 7818022	9 5618515	3924	10 4381485	9 8178516	10 0271062	461	9 9728938	58	
39 5350915	3460	10 4649085	8 7825171	9 5622439	3921	10 4377561	9 8176711	10 0271523	461	9 9728477	57	
49 5354375	3457	10 4645625	8 7832314	9 5626360	3918	10 4373640	9 8174905	10 0271984	462	9 9728016	56	
59 5357832	3454	10 4642168	8 7839452	9 5630278	3916	10 4369721	9 8173098	10 0272446	462	9 9727554	55	
69 5361286	3451	10 4638714	8 7846583	9 5634194	3913	10 4365806	9 8171291	10 0272908	463	9 9727092	54	
79 5364737	3447	10 4635263	8 7853708	9 5638107	3911	10 4361893	9 8169483	10 0273371	463	9 9726629	53	
89 5368184	3444	10 4631816	8 7860827	9 5642018	3907	10 4357982	9 8167675	10 0273834	463	9 9726166	52	
99 5371629	3441	10 4628371	8 7867940	9 5645925	3906	10 4354075	9 8165866	10 0274297	464	9 9725703	51	
109 5375074	3441	10 4624930	8 7875047	9 5649831	3902	10 4350169	9 8164056	10 0274761	464	9 9725239	50	
119 5378508	3438	10 4621492	8 7882149	9 5653733	3900	10 4346267	9 8162246	10 0275225	465	9 9724775	49	
129 5381943	3435	10 4618047	8 7889244	9 5657633	3897	10 4342367	9 8160435	10 0275690	465	9 9724310	48	
139 5385375	3432	10 4614625	8 7896333	9 5661530	3894	10 4338470	9 8158624	10 0276155	465	9 9723845	47	
149 5388804	3429	10 4611196	8 7903416	9 5665424	3892	10 4334576	9 8156812	10 0276620	466	9 9723380	46	
159 5392230	3426	10 4607770	8 7910494	9 5669316	3889	10 4330684	9 8155000	10 0277086	466	9 9722914	45	
169 5395653	3423	10 4604347	8 7917565	9 5673205	3886	10 4326795	9 8153187	10 0277552	467	9 9722448	44	
179 5399073	3420	10 4600927	8 7924630	9 5677091	3884	10 4322909	9 8151374	10 0278019	467	9 9721981	43	
189 5402489	3416	10 4597511	8 7931690	9 5680975	3881	10 4319025	9 8149560	10 0278486	467	9 9721514	42	
199 5405903	3414	10 4594091	8 7938743	9 5684856	3879	10 4315144	9 8147745	10 0278953	468	9 9721047	41	
209 5409314	3411	10 4590686	8 7945791	9 5688735	3876	10 4311265	9 8145930	10 0279421	469	9 9720579	40	
219 5412721	3407	10 4587279	8 7952833	9 5692611	3873	10 4307389	9 8144114	10 0279890	468	9 9720110	39	
229 5416126	3405	10 4583874	8 7959869	9 5696484	3871	10 4303516	9 8142298	10 0280358	470	9 9719642	38	
239 5419527	3401	10 4580473	8 7966899	9 5700355	3868	10 4299645	9 8140481	10 0280828	469	9 9719172	37	
249 5422926	3399	10 4577074	8 7973923	9 5704223	3865	10 4295777	9 8138664	10 0281297	470	9 9718703	36	
259 5426321	3395	10 4573679	8 7980941	9 5708088	3863	10 4291912	9 8136846	10 0281767	471	9 9718233	35	
269 5429713	3392	10 4570287	8 7987953	9 5711951	3860	10 4288049	9 8135027	10 0282238	471	9 9717762	34	
279 5433103	3390	10 4566897	8 7994960	9 5715811	3858	10 4284189	9 8133208	10 0282709	471	9 9717291	33	
289 5436489	3386	10 4563511	8 8001961	9 5719669	3855	10 4280331	9 8131389	10 0283180	472	9 9716820	32	
299 5439873	3384	10 4560127	8 8008956	9 5723524	3853	10 4276476	9 8129569	10 0283652	472	9 9716348	31	
309 5443253	3380	10 4556747	8 8015945	9 5727377	3850	10 4272623	9 8127748	10 0284124	472	9 9715876	30	
319 5446630	3377	10 4553370	8 8022928	9 5731227	3847	10 4268773	9 8125926	10 0284596	473	9 9715404	29	
329 5450005	3375	10 4549995	8 8029906	9 5735074	3845	10 4264926	9 8124104	10 0285069	474	9 9714931	28	
339 5453376	3371	10 4546624	8 8036872	9 5738919	3842	10 4261081	9 8122282	10 0285543	473	9 9714457	27	
349 5456745	3369	10 4543255	8 8043843	9 5742761	3840	10 4257239	9 8120459	10 0286016	475	9 9713984	26	
359 5460110	3365	10 4539890	8 8050803	9 5746601	3837	10 4253399	9 8118635	10 0286491	474	9 9713509	25	
369 5463472	3362	10 4536528	8 8057758	9 5750438	3834	10 4249562	9 8116811	10 0286966	475	9 9713033	24	
379 5466832	3360	10 4533168	8 8064707	9 5754272	3832	10 4245728	9 8114986	10 0287440	476	9 9712560	23	
389 5470189	3357	10 4529811	8 8071649	9 5758104	3830	10 4241896	9 8113161	10 0287916	476	9 9712084	22	
399 5473542	3353	10 4526455	8 8078582	9 5761934	3827	10 4238066	9 8111335	10 0288393	476	9 9711608	21	
409 5476893	3351	10 4523107	8 8085518	9 5765761	3824	10 4234239	9 8109509	10 0288868	477	9 9711132	20	
419 5480240	3347	10 4519760	8 8092444	9 5769585	3822	10 4230415	9 8107682	10 0289345	477	9 9710655	19	
429 5483585	3345	10 4516415	8 8099364	9 5773407	3819	10 4226593	9 8105854	10 0289822	477	9 9710178	18	
439 5486927	3342	10 4513073	8 8106278	9 5777226	3817	10 4222774	9 8104026	10 0290299	478	9 9709701	17	
449 5490266	3339	10 4509734	8 8113187	9 5781043	3815	10 4218957	9 8102197	10 0290777	479	9 9709223	16	
459 5493602	3336	10 4506398	8 8120090	9 5784858	3811	10 4215142	9 8100368	10 0291256	479	9 9708744	15	
469 5496935	3333	10 4503065	8 8126988	9 5788669	3810	10 4211331	9 8098538	10 0291735	479	9 9708265	14	
479 5500265	3330	10 4499735	8 8133879	9 5792479	3807	10 4207521	9 8096708	10 0292214	480	9 9707786	13	
489 5503592	3327	10 4496408	8 8140765	9 5796286	3804	10 4203714	9 8094877	10 0292694	480	9 9707306	12	
499 5506916	3324	10 4493084	8 8147646	9 5800090	3802	10 4199910	9 8093045	10 0293174	480	9 9706826	11	
509 5510237	3321	10 4489763	8 8154521	9 5803892	3799	10 4196108	9 8091213	10 0293654	481	9 9706346	10	
519 5513556	3319	10 4486444	8 8161390	9 5807691	3797	10 4192309	9 8089380	10 0294133	482	9 9705865	9	
529 5516871	3315	10 4483129	8 8168253	9 5811488	3794	10 4188512	9 8087547	10 0294617	481	9 9705383	8	
539 5520184	3313	10 4479816	8 8175111	9 5815282	3792	10 4184718	9 8085713	10 0295098	483	9 9704902	7	
549 5523494	3310	10 4476506	8 8181964	9 5819074	3790	10 4180926	9 8083879	10 0295581	482	9 9704419	6	
559 5526801	3307	10 4473199	8 8188810	9 5822864	3787	10 4177136	9 8082044	10 0296063	483	9 9703937	5	
569 5530105	3304	10 4469895	8 8195652	9 5826651	3784	10 4173349	9 8080208	10 0296546	484	9 9703454	4	
579 5533406	3301	10 4466594	8 8202487	9 5830435	3782	10 4169565	9 8078372	10 0297030	484	9 9702970	3	
589 5536704	3298	10 4463296	8 8209317	9 5834217	3780	10 4165783	9 8076536	10 0297514	484	9 9702486	2	
599 5539999	3295	10 4460001	8 8216142	9 5837997	3777	10 4162003	9 8074698	10 0297998	485	9 9702002	1	
609 5543292	3293	10 4456708	8 8222961	9 5841774		10 4158226	9 8072860	10 0298483		9 9701517	0	
Cofine	Diff.	Secant	Coverf	Cotang	Diff.	Tang	Verfedf	Cofec	D.	Sine		

Log Sines, &c

286

00

Log Sines, &c

21 Deg.		NATURAL SINES, &c.							Tab. 10	
	Sine	Diff	Coverf	Cotec	Tang.	Cotang	Secant	Vel	Diff	Cotline
0	3583679	2716	6416321	27904281	3838640	26050891	10711450	0664196	1043	9335804
1	3586395	2715	6413605	27883153	3841978	26028258	10712647	0665239	1043	9334761
2	3589110	2715	6410890	27862059	3845317	26005659	10713844	0666282	1043	9333718
3	3591825	2715	6408175	27840999	3848656	25983095	10715043	0667327	1045	9332673
4	3594540	2715	6405460	27819973	3851996	25960564	10716244	0668372	1045	9331628
5	3597254	2714	6402746	27798982	3855337	25938068	10717445	0669418	1046	9330582
6	3599968	2714	6400032	27778024	3858679	25915606	10718647	0670465	1047	9329535
7	3602682	2713	6397318	27757100	3862021	25893177	10719851	0671512	1047	9328488
8	3605395	2713	6394605	27736211	3865364	25870782	10721056	0672561	1049	9327439
9	3608108	2713	6391892	27715355	3868708	25848421	10722262	0673610	1049	9326390
10	3610821	2713	6389179	27694531	3872053	25826094	10723469	0674660	1050	9325340
11	3613534	2712	6386466	27673744	3875398	25803800	10724678	0675710	1050	9324290
12	3616246	2712	6383754	27652988	3878744	25781539	10725887	0676762	1052	9323239
13	3618958	2711	6381042	27632267	3882091	25759312	10727098	0677814	1052	9322186
14	3621669	2711	6378331	27611578	3885439	25737118	10728310	0678867	1053	9321133
15	3624380	2711	6375620	27590923	3888787	25714957	10729523	0679921	1054	9320079
16	3627091	2711	6372909	27570301	3892136	25692830	10730737	0680976	1055	9319024
17	3629802	2710	6370198	27549712	3895486	25670735	10731953	0682031	1055	9317969
18	3632512	2710	6367488	27529157	3898837	25648674	10733170	0683088	1057	9316912
19	3635222	2710	6364778	27508634	3902189	25626645	10734388	0684145	1057	9315855
20	3637932	2709	6362068	27488144	3905541	25604649	10735607	0685203	1058	9314797
21	3640641	2709	6359359	27467687	3908894	25582686	10736827	0686261	1058	9313739
22	3643351	2708	6356647	27447263	3912247	25560756	10738048	0687321	1060	9312679
23	3646059	2708	6353941	27426871	3915602	25538858	10739271	0688381	1060	9311619
24	3648768	2708	6351232	27406512	3918957	25516992	10740495	0689442	1061	9310558
25	3651476	2708	6348524	27386186	3922313	25495160	10741720	0690504	1062	9309496
26	3654184	2707	6345816	27365892	3925670	25473359	10742946	0691566	1062	9308434
27	3656891	2707	6343109	27345630	3929027	25451591	10744173	0692630	1064	9307370
28	3659599	2707	6340401	27325400	3932386	25429855	10745402	0693694	1064	9306306
29	3662306	2706	6337694	27305203	3935745	25408151	10746631	0694759	1065	9305241
30	3665012	2706	6334988	27285038	3939105	25386479	10747862	0695824	1065	9304176
31	3667719	2706	6332281	27264905	3942465	25364839	10749095	0696891	1067	9303109
32	3670425	2705	6329575	27244804	3945827	25343231	10750328	0697958	1067	9302042
33	3673130	2705	6326870	27224735	3949189	25321655	10751562	0699026	1068	9300974
34	3675836	2705	6324164	27204698	3952552	25300111	10752798	0700095	1069	9299905
35	3678541	2705	6321459	27184693	3955916	25278598	10754035	0701165	1070	9298835
36	3681246	2704	6318754	27164719	3959280	25257117	10755273	0702235	1070	9297765
37	3683950	2704	6316050	27144777	3962645	25235667	10756512	0703306	1071	9296694
38	3686654	2704	6313346	27124866	3966011	25214249	10757753	0704378	1072	9295622
39	3689358	2703	6310642	27104987	3969378	25192863	10758995	0705451	1073	9294549
40	3692061	2703	6307939	27085139	3972746	25171507	10760238	0706525	1074	9293475
41	3694765	2703	6305235	27065323	3976114	25150183	10761481	0707599	1074	9292401
42	3697468	2702	6302532	27045538	3979483	25128890	10762727	0708674	1075	9291326
43	3700170	2702	6299830	27025784	3982853	25107629	10763973	0709750	1076	9290250
44	3702872	2702	6297128	27006061	3986224	25086398	10765221	0710827	1077	9289173
45	3705574	2702	6294426	26986370	3989595	25065198	10766470	0711904	1077	9288096
46	3708276	2701	6291724	26966709	3992968	25044029	10767720	0712983	1079	9287017
47	3710977	2701	6289023	26947079	3996341	25022891	10768971	0714062	1079	9285938
48	3713678	2701	6286322	26927480	3999715	25001784	10770224	0715142	1080	9284858
49	3716379	2700	6283621	26907912	4003089	24980707	10771477	0716222	1080	9283778
50	3719079	2701	6280921	26888374	4006465	24959661	10772732	0717304	1082	9282696
51	3721780	2699	6278220	26868867	4009841	24938645	10773988	0718386	1082	9281614
52	3724479	2700	6275521	26849391	4013218	24917660	10775246	0719469	1083	9280531
53	3727179	2699	6272821	26829945	4016596	24896701	10776504	0720553	1084	9279447
54	3729878	2699	6270122	26810530	4019974	24875781	10777764	0721637	1086	9278363
55	3732577	2698	6267423	26791145	4023354	24854887	10779025	0722723	1086	9277277
56	3735275	2698	6264725	26771790	4026734	24834023	10780287	0723809	1087	9276191
57	3737973	2698	6262027	26752465	4030115	24813190	10781550	0724896	1088	9275104
58	3740671	2698	6259321	26733171	4033496	24792386	10782815	0725984	1088	9274016
59	3743369	2697	6256631	26713906	4036879	24771612	10784080	0727072	1089	9272928
60	3746066	2697	6253934	26694672	4040264	24750869	10785347	0728161	1089	9271839
	C line	Diff	Verf.	Secant	Cotan	Tang.	Cotec	Coverf	Diff	Sine

11 Deg		LOG SINE, &c										(291)	
Sine	Diff	Cofec	Veriedf	Tang	Diff	Cotang	Coverf	Secant	D	Cofine			
9 5543292	3289	10 4456708	8 8222961	9 5841774	3773	10 4158226	9 8072860	10 0298483	485	9 9701517	60		
9 5546581	3287	10 4453419	8 8229774	9 5845549	3772	10 4154451	9 8071022	10 0298968	485	9 9701632	59		
9 5549868	3284	10 4450132	8 8236582	9 5849321	3770	10 4150679	9 8069183	10 0299453	486	9 9701747	58		
9 5553152	3281	10 4446846	8 8243385	9 5853091	3768	10 4146909	9 8067344	10 0299939	487	9 9701861	57		
9 5556433	3278	10 4443567	8 8250182	9 5856859	3765	10 4143141	9 8065503	10 0300426	487	9 9701974	56		
9 5559711	3276	10 4440289	8 8256973	9 5860624	3762	10 4139376	9 8063663	10 0300913	487	9 9702087	55		
9 5562981	3272	10 4437013	8 8263759	9 5864386	3761	10 4135614	9 8061821	10 0301400	488	9 9702200	54		
9 5566259	3269	10 4433741	8 8270539	9 5868147	3757	10 4131853	9 8059980	10 0301888	488	9 9702312	53		
9 5569539	3267	10 4430471	8 8277314	9 5871904	3756	10 4128090	9 8058137	10 0302376	488	9 9702424	52		
9 5572819	3264	10 4427204	8 8284083	9 5875660	3753	10 4124340	9 8056294	10 0302864	489	9 9702536	51		
9 5576096	3261	10 4423940	8 8290848	9 5879413	3750	10 4120587	9 8054451	10 0303353	489	9 9702647	50		
9 5579373	3258	10 4420679	8 8297606	9 5883163	3749	10 4116837	9 8052606	10 0303842	490	9 9702758	49		
9 5582649	3256	10 4417421	8 8304360	9 5886912	3743	10 4113088	9 8050762	10 0304332	491	9 9702868	48		
9 5585925	3253	10 4414165	8 8311107	9 5890657	3744	10 4109343	9 8048916	10 0304823	490	9 9702977	47		
9 5589201	3250	10 4410912	8 8317850	9 5894401	3741	10 4105599	9 8047070	10 0305313	491	9 9703087	46		
9 5592478	3247	10 4407662	8 8324587	9 5898142	3739	10 4101858	9 8045224	10 0305804	492	9 9703196	45		
9 5595755	3244	10 4404415	8 8331318	9 5901881	3736	10 4098119	9 8043377	10 0306296	492	9 9703304	44		
9 5599032	3242	10 4401171	8 8338044	9 5905617	3734	10 4094383	9 8041529	10 0306788	492	9 9703412	43		
9 5602307	3239	10 4397929	8 8344765	9 5909351	3731	10 4090649	9 8039681	10 0307280	493	9 9703520	42		
9 5605581	3236	10 4394690	8 8351480	9 5913082	3730	10 4086918	9 8037832	10 0307773	493	9 9703627	41		
9 5608854	3233	10 4391454	8 8358190	9 5916812	3727	10 4083188	9 8035983	10 0308266	493	9 9703734	40		
9 5612127	3231	10 4388221	8 8364895	9 5920539	3724	10 4079461	9 8034133	10 0308759	493	9 9703841	39		
9 5615400	3227	10 4384990	8 8371594	9 5924263	3721	10 4075737	9 8032283	10 0309254	495	9 9703946	38		
9 5618673	3225	10 4381763	8 8378288	9 5927985	3720	10 4072015	9 8030432	10 0309748	494	9 9704052	37		
9 5621946	3223	10 4378538	8 8384976	9 5931705	3718	10 4068295	9 8028580	10 0310243	495	9 9704157	36		
9 5625219	3219	10 4375315	8 8391660	9 5935423	3715	10 4064577	9 8026728	10 0310738	495	9 9704262	35		
9 5628492	3217	10 4372096	8 8398337	9 5939138	3713	10 4060862	9 8024875	10 0311234	496	9 9704367	34		
9 5631765	3214	10 4368879	8 8405010	9 5942851	3710	10 4057149	9 8023021	10 0311730	496	9 9704472	33		
9 5635038	3211	10 4365665	8 8411677	9 5946561	3708	10 4053439	9 8021167	10 0312227	497	9 9704577	32		
9 5638311	3208	10 4362454	8 8418339	9 5950269	3706	10 4049731	9 8019313	10 0312724	497	9 9704682	31		
9 5641584	3206	10 4359246	8 8424996	9 5953975	3704	10 4046025	9 8017458	10 0313221	497	9 9704787	30		
9 5644857	3203	10 4356040	8 8431647	9 5957679	3701	10 4042321	9 8015602	10 0313719	498	9 9704892	29		
9 5648130	3200	10 4352837	8 8438294	9 5961380	3699	10 4038620	9 8013746	10 0314217	499	9 9704997	28		
9 5651403	3198	10 4349637	8 8444944	9 5965079	3697	10 4034921	9 8011889	10 0314716	499	9 9705102	27		
9 5654676	3195	10 4346439	8 8451570	9 5968776	3694	10 4031224	9 8010031	10 0315215	499	9 9705207	26		
9 5657949	3192	10 4343244	8 8458200	9 5972470	3692	10 4027530	9 8008173	10 0315714	500	9 9705312	25		
9 5661222	3189	10 4340052	8 8464822	9 5976162	3690	10 4023838	9 8006315	10 0316214	501	9 9705417	24		
9 5664495	3187	10 4336861	8 8471445	9 5979852	3688	10 4020148	9 8004456	10 0316715	501	9 9705522	23		
9 5667768	3184	10 4333676	8 8478060	9 5983540	3685	10 4016460	9 8002596	10 0317216	501	9 9705627	22		
9 5671041	3181	10 4330497	8 8484670	9 5987225	3683	10 4012775	9 8000735	10 0317717	502	9 9705732	21		
9 5674314	3179	10 4327311	8 8491274	9 5990908	3680	10 4009092	9 7998873	10 0318219	502	9 9705837	20		
9 5677587	3176	10 4324132	8 8497873	9 5994588	3679	10 4005412	9 7997013	10 0318721	502	9 9705942	19		
9 5680860	3173	10 4320956	8 8504467	9 5998267	3676	10 4001733	9 7995151	10 0319223	503	9 9706047	18		
9 5684133	3170	10 4317783	8 8511055	9 6001943	3674	10 3998057	9 7993288	10 0319726	503	9 9706152	17		
9 5687406	3168	10 4314613	8 8517639	9 6005617	3672	10 3994383	9 7991425	10 0320229	504	9 9706257	16		
9 5690679	3165	10 4311445	8 8524217	9 6009289	3669	10 3990711	9 7989561	10 0320733	504	9 9706362	15		
9 5693952	3162	10 4308279	8 8530790	9 6012958	3667	10 3987042	9 7987697	10 0321237	505	9 9706467	14		
9 5697225	3160	10 4305111	8 8537358	9 6016625	3665	10 3983375	9 7985832	10 0321742	505	9 9706572	13		
9 5700498	3157	10 4301957	8 8543921	9 6020290	3663	10 3979710	9 7983966	10 0322247	506	9 9706677	12		
9 5703771	3155	10 4298800	8 8550479	9 6023953	3660	10 3976047	9 7982100	10 0322753	506	9 9706782	11		
9 5707044	3151	10 4295645	8 8557032	9 6027613	3658	10 3972387	9 7980233	10 0323259	506	9 9706887	10		
9 5710317	3150	10 4292494	8 8563579	9 6031271	3656	10 3968729	9 7978366	10 0323765	507	9 9706992	9		
9 5713590	3146	10 4289344	8 8570121	9 6034927	3654	10 3965073	9 7976498	10 0324272	507	9 9707097	8		
9 5716863	3144	10 4286198	8 8576659	9 6038581	3652	10 3961419	9 7974629	10 0324779	508	9 9707202	7		
9 5720136	3141	10 4283054	8 8583191	9 6042233	3649	10 3957767	9 7972760	10 0325287	508	9 9707307	6		
9 5723409	3139	10 4279913	8 8589718	9 6045882	3647	10 3954118	9 7970890	10 0325795	508	9 9707412	5		
9 5726682	3136	10 4276774	8 8596240	9 6049529	3645	10 3950471	9 7969020	10 0326303	509	9 9707517	4		
9 5729955	3133	10 4273638	8 8602757	9 6053174	3643	10 3946826	9 7967149	10 0326812	509	9 9707622	3		
9 5733228	3131	10 4270509	8 8609268	9 6056817	3640	10 3943183	9 7965278	10 0327321	510	9 9707727	2		
9 5736501	3128	10 4267374	8 8615775	9 6060457	3639	10 3939543	9 7963406	10 0327831	510	9 9707832	1		
9 5739774		10 4264246	8 8622277	9 6064096		10 3935904	9 7961533	10 0328341		9 9707937	0		
Cofine	Diff	Secant	Coverf	Cotang	Diff	Tang	Veriedf	Cofec	D.	Sine			

22 Deg.		NATURAL SINES, &c.						Tab. 10	
Sine	Diff	Coverf.	Colec.	Tang.	Cotang.	Secant	Verf	Diff	Cotang.
0	3746066	2697	6253934	2 6694672	4040262	2 4750869	0785347	0728161	1091
1	3748763	2696	6251237	2 6675467	4043646	2 4730155	0786616	0729252	1090
2	3751459	2697	6248541	2 6656292	4047031	2 4709470	0787885	0730342	1092
3	3754156	2696	6245844	2 6637148	4050417	2 4688816	0789156	0731434	1092
4	3756852	2695	6243148	2 6618033	4053804	2 4668191	0790427	0732526	1094
5	3759547	2696	6240453	2 6598947	4057191	2 4647596	0791700	0733620	1094
6	3762243	2695	6237757	2 6579891	4060579	2 4627030	0792975	0734714	1094
7	3764938	2694	6235062	2 6560865	4063968	2 4606494	0794250	0735808	1096
8	3767632	2695	6232368	2 6541868	4067358	2 4585987	0795527	0736904	1096
9	3770327	2694	6229673	2 6522901	4070748	2 4565510	0796805	0738000	1098
10	3773021	2693	6226979	2 6503962	4074139	2 4545061	0798084	0739098	1097
11	3775714	2694	6224286	2 6485054	4077531	2 4524642	0799364	0740195	1099
12	3778408	2693	6221592	2 6466174	4080924	2 4504252	0800646	0741294	1100
13	3781101	2693	6218899	2 6447323	4084318	2 4483891	0801928	0742394	1100
14	3783794	2692	6216206	2 6428502	4087713	2 4463559	0803212	0743494	1101
15	3786486	2692	6213514	2 6409710	4091108	2 4443256	0804497	0744595	1102
16	3789178	2692	6210822	2 6390946	4094504	2 4422982	0805784	0745697	1102
17	3791870	2692	6208130	2 6372211	4097901	2 4402736	0807071	0746799	1104
18	3794562	2691	6205438	2 6353506	4101299	2 4382519	0808360	0747903	1104
19	3797253	2691	6202747	2 6334828	4104697	2 4362331	0809650	0749007	1105
20	3799944	2690	6200056	2 6316180	4108097	2 4342172	0810942	0750112	1106
21	3802634	2690	6197366	2 6297560	4111497	2 4322041	0812234	0751218	1106
22	3805324	2690	6194676	2 6278969	4114898	2 4301938	0813528	0752324	1108
23	3808014	2690	6191986	2 6260406	4118300	2 4281864	0814823	0753432	1108
24	3810704	2689	6189296	2 6241872	4121703	2 4261819	0816119	0754540	1109
25	3813393	2689	6186607	2 6223366	4125100	2 4241801	0817417	0755649	1109
26	3816082	2688	6183918	2 6204888	4128510	2 4221812	0818715	0756758	1111
27	3818770	2689	6181230	2 6186439	4131915	2 4201851	0820015	0757869	1111
28	3821459	2688	6178541	2 6168018	4135321	2 4181918	0821316	0758980	1112
29	3824147	2687	6175853	2 6149624	4138728	2 4162013	0822618	0760092	1113
30	3826834	2688	6173166	2 6131259	4142136	2 4142136	0823922	0761205	1113
31	3829522	2687	6170478	2 6112921	4145544	2 4122286	0825227	0762318	1115
32	3832209	2686	6167791	2 6094613	4148953	2 4102465	0826533	0763433	1115
33	3834895	2687	6165105	2 6076332	4152363	2 4082672	0827840	0764548	1116
34	3837582	2686	6162418	2 6058078	4155774	2 4062906	0829149	0765664	1116
35	3840268	2685	6159732	2 6039852	4159186	2 4043168	0830458	0766780	1118
36	3842953	2686	6157047	2 6021654	4162598	2 4023457	0831769	0767898	1118
37	3845639	2685	6154361	2 6003484	4166012	2 4003774	0833081	0769016	1119
38	3848324	2684	6151676	2 5985341	4169426	2 3984118	0834395	0770135	1120
39	3851008	2685	6148992	2 5967225	4172841	2 3964490	0835709	0771255	1121
40	3853693	2684	6146307	2 5949137	4176257	2 3944889	0837025	0772376	1121
41	3856377	2683	6143623	2 5931077	4179673	2 3925316	0838342	0773497	1122
42	3859060	2684	6140940	2 5913043	4183091	2 3905769	0839661	0774619	1123
43	3861744	2683	6138256	2 5895037	4186509	2 3886250	0840980	0775742	1124
44	3864427	2683	6135573	2 5877058	4189928	2 3866758	0842301	0776866	1124
45	3867110	2682	6132890	2 5859107	4193348	2 3847293	0843623	0777990	1126
46	3869792	2682	6130208	2 5841182	4196769	2 3827855	0844947	0779116	1126
47	3872474	2682	6127526	2 5823284	4200190	2 3808444	0846271	0780242	1126
48	3875156	2681	6124844	2 5805414	4203613	2 3789060	0847597	0781368	1128
49	3877837	2681	6122163	2 5787570	4207036	2 3769703	0848924	0782496	1129
50	3880518	2681	6119482	2 5769753	4210460	2 3750372	0850252	0783625	1129
51	3883199	2681	6116801	2 5751963	4213885	2 3731068	0851582	0784754	1130
52	3885880	2680	6114120	2 5734199	4217311	2 3711791	0852913	0785884	1130
53	3888560	2680	6111440	2 5716462	4220738	2 3692540	0854245	0787014	1132
54	3891240	2679	6108760	2 5698752	4224165	2 3673316	0855578	0788146	1132
55	3893919	2679	6106081	2 5681069	4227594	2 3654118	0856912	0789278	1133
56	3896598	2679	6103402	2 5663412	4231023	2 3634946	0858248	0790411	1134
57	3899277	2678	6100723	2 5645781	4234453	2 3615801	0859585	0791545	1135
58	3901955	2678	6098045	2 5628176	4237884	2 3596683	0860924	0792680	1135
59	3904633	2678	6095367	2 5610599	4241316	2 3577590	0862263	0793815	1136
60	3907311	2678	6092689	2 5593047	4244748	2 3558524	0863604	0794951	1136
Cotang.	Diff	Verf.	Secant	Cotan.	Tang.	Colec	Coverf.	Diff	Sine

Sine	Diff	Cotang	Verfedi	Tang.	Diff	Cotang	Coverl	Secant	D	Cotang
09 5735754	3126	10 4204 46	8 86 227	10 6064096	3636	10 3935904	9 7961533	10 0328341	511	9 9671051
19 5738880	3123	10 4261120	8 86287 4	10 6067732	3634	10 3912268	9 7959060	10 0328852	511	9 9671148
29 5741000	3110	10 4327997	8 8633 65	10 6071366	3631	10 3928634	9 7957786	10 0329363	512	9 967063
39 5745123	3117	10 4 54877	8 8641752	10 6074997	3630	10 3925003	9 795591	10 0329875	511	9 9670125
49 5748 40	3116	10 1251760	8 8648233	10 6078627	3627	10 3921373	9 7954037	10 0330386	511	9 9669614
59 5751356	3111	10 4 48644	8 8654710	10 6082254	3626	10 3917746	9 7952161	10 0330899	511	9 9669101
69 5754408	3110	10 424553	8 8661181	10 6085880	3623	10 3914120	9 7950284	10 0331412	513	9 9668588
79 5757571	3107	10 4 4212	8 866 648	10 6089503	3621	10 3910497	9 7948408	10 0331925	513	9 9668075
89 5760685	3105	10 4233315	8 8674109	10 6093124	3618	10 3906876	9 7946531	10 0332438	513	9 9667562
99 5763770	3102	10 4236210	8 8680566	10 6096742	3617	10 3903258	9 7944653	10 0332952	514	9 9667048
109 5766822	3099	10 4233108	8 8687018	10 6100359	3614	10 3899641	9 7942774	10 0333467	515	9 9666533
119 5769891	3097	10 4230009	8 8693464	10 6103973	3613	10 3896027	9 7940895	10 0333982	515	9 9666018
129 5772958	3095	10 4226912	8 8699906	10 6107586	3610	10 3892414	9 7939015	10 0334497	516	9 9665503
139 5776103	3092	10 4 23817	8 8706312	10 6111196	3608	10 3888804	9 7937135	10 0335013	516	9 9664987
149 5779275	3089	10 4220725	8 8712774	10 6114804	3605	10 3885196	9 7935251	10 0335529	517	9 9664471
159 5782364	3086	10 4217636	8 8719201	10 6118409	3604	10 3881591	9 7933373	10 0336046	517	9 9663954
169 5785450	3085	10 4 14550	8 8725643	10 6122013	3602	10 3877987	9 7931491	10 0336563	517	9 9663437
179 5788535	3081	10 4211465	8 8732040	10 6125615	3599	10 3874385	9 7929608	10 0337080	518	9 9662920
189 5791611	3079	10 4208384	8 8738452	10 6129214	3598	10 3870786	9 7927725	10 0337598	518	9 9662402
199 5794695	3077	10 4205305	8 8744859	10 6132812	3595	10 3867188	9 7925841	10 0338116	519	9 9661881
209 5797772	3073	10 4202228	8 8751261	10 6136407	3593	10 3863593	9 7923956	10 0338635	519	9 9661364
219 5800845	3071	10 4199155	8 8757658	10 6140000	3591	10 3860000	9 7922071	10 0339154	520	9 9660846
229 5803917	3069	10 4196083	8 8764051	10 6143591	3589	10 3856409	9 7920186	10 0339674	520	9 9660326
239 5806980	3066	10 4193014	8 8770438	10 6147180	3586	10 3852820	9 7918300	10 0340194	521	9 9659806
249 5810052	3064	10 4189948	8 8776821	10 6150766	3585	10 3849 34	9 7916413	10 0340715	521	9 9659285
259 5813116	3061	10 4186884	8 8783198	10 6154351	3583	10 3845649	9 7914525	10 0341236	521	9 9658761
269 5816177	3059	10 4183823	8 8789571	10 6157934	3580	10 3842066	9 7912637	10 0341757	522	9 96582

23 Deg.		NATURAL SINES, &c								Tab 10	
	Sine	Diff	Coverf	Cofec	Tang	Cotang	Secant	Verf	Diff	Cofine	
0	3907311	2678	6092689	2 5593047	4244748	2 35585 4	1 0863604	0794951	1137	9205049	60
1	3909989	2677	6090011	2 5575521	4248182	2 3539483	1 0864946	0796088	1138	9203912	59
2	3912666	2677	6087334	2 5558021	4251616	2 3520469	1 0866289	0797226	1139	9202774	58
3	3915343	2676	6084657	2 5540548	4255051	2 3501481	1 0867634	0798365	1139	9201635	57
4	3918019	2676	6081981	2 5523101	4258487	2 3482519	1 0868979	0799504	1140	9200496	56
5	3920695	2676	6079305	2 5505680	4261924	2 3463582	1 0870326	0800644	1141	9199356	55
6	3923371	2676	6076629	2 5488284	4265361	2 3444672	1 0871675	0801785	1142	9198215	54
7	3926047	2675	6073953	2 5470915	4268800	2 3425787	1 0873024	0802927	1142	9197073	53
8	3928722	2675	6071278	2 5453571	4272239	2 3406928	1 0874375	0804069	1143	9195931	52
9	3931397	2674	6068603	2 5436253	4275680	2 3388095	1 0875727	0805212	1144	9194788	51
10	3934071	2674	6065929	2 5418961	4279121	2 3369287	1 0877080	0806356	1145	9193644	50
11	3936745	2674	6063255	2 5401694	4282563	2 3350505	1 0878435	0807501	1146	9192499	49
12	3939419	2674	6060581	2 5384453	4286005	2 3331748	1 0879791	0808647	1146	9191353	48
13	3942093	2673	6057907	2 5367238	4289449	2 3313017	1 0881148	0809793	1147	9190207	47
14	3944766	2673	6055234	2 5350048	4292894	2 3294311	1 0882506	0810940	1148	9189060	46
15	3947439	2672	6052561	2 5332883	4296339	2 3275630	1 0883866	0812088	1149	9187912	45
16	3950111	2672	6049889	2 5315744	4299785	2 3256975	1 0885226	0813237	1149	9186763	44
17	3952783	2672	6047217	2 5298630	4303232	2 3238345	1 0886589	0814386	1150	9185614	43
18	3955455	2672	6044545	2 5281541	4306680	2 3219747	1 0887952	0815536	1151	9184464	42
19	3958127	2671	6041873	2 5264478	4310129	2 3201160	1 0889317	0816687	1152	9183313	41
20	3960798	2670	6039202	2 5247440	4313579	2 3182606	1 0890682	0817839	1152	9182161	40
21	3963468	2671	6036532	2 5230426	4317030	2 3164076	1 0892050	0818991	1154	9181009	39
22	3966139	2670	6033861	2 5213438	4320481	2 3145571	1 0893418	0820145	1154	9179855	38
23	3968809	2670	6031191	2 5196475	4323933	2 3127092	1 0894788	0821299	1155	9178701	37
24	3971479	2669	6028521	2 5179537	4327386	2 3108637	1 0896159	0822454	1155	9177546	36
25	3974148	2670	6025852	2 5162624	4330840	2 3090206	1 0897531	0823609	1157	9176391	35
26	3976818	2668	6023182	2 5145735	4334295	2 3071801	1 0898904	0824766	1157	9175234	34
27	3979486	2669	6020514	2 5128871	4337751	2 3053420	1 0900279	0825923	1158	9174077	33
28	3982155	2668	6017845	2 5112032	4341208	2 3035064	1 0901655	0827081	1159	9172919	32
29	3984823	2668	6015177	2 5095218	4344665	2 3016732	1 0903032	0828240	1159	9171760	31
30	3987491	2667	6012509	2 5078428	4348124	2 2998425	1 0904411	0829399	1161	9170601	30
31	3990158	2667	6009842	2 5061663	4351583	2 2980143	1 0905791	0830560	1161	9169441	29
32	3992825	2667	6007175	2 5044923	4355043	2 2961885	1 0907172	0831721	1161	9168279	28
33	3995492	2666	6004508	2 5028207	4358504	2 2943651	1 0908554	0832882	1163	9167118	27
34	3998158	2667	6001842	2 5011515	4361966	2 2925442	1 0909938	0834045	1163	9165955	26
35	4000825	2665	5999175	2 4994848	4365429	2 2907257	1 0911323	0835209	1164	9164791	25
36	4003490	2666	5996510	2 4978204	4368893	2 2889096	1 0912709	0836373	1165	9163627	24
37	4006156	2665	5993844	2 4961586	4372357	2 2870959	1 0914097	0837538	1165	9162462	23
38	4008821	2665	5991179	2 4944991	4375823	2 2852846	1 0915485	0838703	1167	9161297	22
39	4011486	2664	5988514	2 4928421	4379289	2 2834758	1 0916877	0839867	1167	9160130	21
40	4014150	2664	5985850	2 4911874	4382756	2 2816693	1 0918267	0841037	1168	9158963	20
41	4016814	2664	5983186	2 4895352	4386224	2 2798653	1 0919659	0842205	1169	9157795	19
42	4019478	2663	5980522	2 4878854	4389693	2 2780636	1 0921053	0843374	1170	9156626	18
43	4022141	2663	5977859	2 4862380	4393163	2 2762643	1 0922448	0844544	1170	9155456	17
44	4024804	2663	5975196	2 4845929	4396634	2 2744674	1 0923845	0845714	1171	9154286	16
45	4027467	2662	5972533	2 4829503	4400105	2 2726729	1 0925243	0846885	1171	9153115	15
46	4030129	2662	5969871	2 4813100	4403578	2 2708807	1 0926642	0848057	1172	9151943	14
47	4032791	2662	5967209	2 4796721	4407051	2 2690909	1 0928043	0849230	1173	9150770	13
48	4035453	2661	5964547	2 4780366	4410526	2 2673035	1 0929444	0850403	1173	9149597	12
49	4038114	2661	5961886	2 4764034	4414001	2 2655184	1 0930846	0851578	1175	9148422	11
50	4040775	2661	5959225	2 4747726	4417477	2 2637357	1 0932251	0852753	1175	9147247	10
51	4043436	2660	5956564	2 4731442	4420954	2 2619554	1 0933656	0853928	1177	9146072	9
52	4046096	2660	5953904	2 4715181	4424432	2 2601773	1 0935063	0855105	1177	9144895	8
53	4048756	2660	5951244	2 4698943	4427910	2 2584016	1 0936471	0856282	1177	9143718	7
54	4051416	2659	5948584	2 4682729	4431390	2 2566283	1 0937880	0857460	1178	9142540	6
55	4054075	2659	5945925	2 4666538	4434871	2 2548572	1 0939291	0858639	1179	9141361	5
56	4056734	2659	5943266	2 4650371	4438352	2 2530885	1 0940702	0859819	1180	9140181	4
57	4059393	2658	5940607	2 4634227	4441834	2 2513221	1 0942116	0860999	1180	9139001	3
58	4062051	2658	5937949	2 4618106	4445318	2 2495580	1 0943530	0862181	1182	9137819	2
59	4064709	2657	5935291	2 4602008	4448802	2 2477962	1 0944946	0863363	1182	9136637	1
60	4067366		5932634	2 4585933	4452287	2 2460368	1 0946363	0864545		9135455	0
	Cofine	Diff	Verf	Secant	Cotan.	Tang	Cofec.	Coverf	Diff	Sine	

23 Deg		Log Sines, &c										(295)	
	Sine	Diff	Cofec	Verfed	Tang	Diff	Cotang	Coverl	Secant	D	Cofine		
0	5918780	2975	104081220	89003406	6278519	3512	103721481	7848090	100359739		99040261	60	
1	5921755	2973	10407845	89009613	6282031	3509	103717969	7846181	100360276	537	99639724	59	
2	5924730	2970	10407572	89015816	6285540	3508	103714460	7844271	100360813	537	99639187	58	
3	5927698	2968	10407230	89022013	6289048	3505	103710952	7842361	100361350	537	99638650	57	
4	5930666	2965	104069334	89028207	6292553	3504	103707441	7840450	100361888	538	99638112	56	
5	5933631	2963	104066369	89034395	6296057	3501	103703943	7838539	100362426	538	99637574	55	
6	5936594	2961	104063406	89040579	6299558	3500	103700442	7836628	100362964	538	99637036	54	
7	5939555	2958	104060445	89046751	6303058	3498	103696941	7834715	100363504	540	99636498	53	
8	5942513	2956	104057487	89052934	6306556	3496	103693444	7832801	100364043	539	99635959	52	
9	5945466	2953	104054531	89059104	6310052	3493	103689945	7830888	100364583	540	99635421	51	
10	5948422	2951	104051573	89065270	6313545	3492	103686455	7828973	100365123	540	99634882	50	
11	5951373	2949	104048627	89071431	6317037	3490	103682963	7827058	100365664	541	99634343	49	
12	5954322	2946	104045678	89077588	6320527	3488	103679473	7825143	100366205	541	99633805	48	
13	5957268	2944	104042732	89083746	6324015	3486	103675985	7823226	100366747	542	99633267	47	
14	5960212	2941	104039788	89089887	6327501	3484	103672499	7821309	100367289	543	99632729	46	
15	5963151	2939	104036846	89096030	6330985	3483	103669015	7819392	100367832	543	99632191	45	
16	5966093	2937	104033907	89102169	6334468	3480	103665532	7817474	100368375	543	99631653	44	
17	5969030	2935	104030970	89108303	6337948	3478	103662052	7815555	100368918	543	99631115	43	
18	5971965	2933	104028035	89114432	6341426	3477	103658574	7813636	100369462	544	99630578	42	
19	5974891	2930	104025103	89120557	6344903	3475	103655097	7811716	100370006	544	99629994	41	
20	5977827	2927	104022173	89126678	6348378	3472	103651622	7809796	100370551	545	99629449	40	
21	5980754	2925	104019246	89132794	6351850	3471	103648150	7807875	100371096	545	99628904	39	
22	5983679	2923	104016321	89138905	6355321	3469	103644679	7805953	100371642	546	99628359	38	
23	5986602	2921	104013398	89145012	6358790	3467	103641210	7804031	100372188	546	99627812	37	
24	5989523	2918	104010477	89151115	6362257	3465	103637743	7802108	100372734	547	99627266	36	
25	5992441	2916	104007559	89157213	6365722	3463	103634278	7800184	100373281	547	99626719	35	
26	5995357	2913	104004643	89163306	6369185	3461	103630815	7798260	100373828	548	99626172	34	
27	5998270	2911	104001730	89169396	6372646	3460	103627354	7796335	100374376	548	99625624	33	
28	6001181	2909	103998819	89175480	6376106	3457	103623894	7794410	100374924	548	99625076	32	
29	6004090	2907	103995910	89181561	6379563	3456	103620437	7792484	100375473	549	99624527	31	
30	6006997	2904	103993003	89187636	6383019	3454	103616981	7790558	100376022	549	99623978	30	
31	6009901	2902	103990097	89193708	6386473	3452	103613527	7788630	100376572	550	99623428	29	
32	6012803	2900	103987197	89199775	6389925	3450	103610075	7786703	100377122	550	99622878	28	
33	6015703	2897	103984297	89205837	6393375	3448	103606625	7784774	100377672	550	99622328	27	
34	6018600	2895	103981400	89211895	6396823	3446	103603177	7782845	100378223	551	99621777	26	
35	6021495	2893	103978505	89217949	6400269	3445	103600731	7780916	100378774	551	99621226	25	
36	6024388	2890	103975612	89223999	6403714	3444	103598286	7778985	100379326	552	99620674	24	
37	6027278	2888	103972722	89230043	6407156	3441	103595844	7777055	100379878	552	99620122	23	
38	6030166	2886	103969834	89236084	6410597	3439	103593403	7775123	100380431	553	99619569	22	
39	6033052	2884	103966948	89242120	6414036	3437	103590964	7773191	100380984	553	99619016	21	
40	6035936	2881	103964064	89248152	6417473	3435	103588527	7771258	100381537	554	99618463	20	
41	6038817	2879	103961183	89254179	6420908	3434	103586092	7769325	100382091	554	99617909	19	
42	6041696	2877	103958301	89260202	6424342	3431	103583658	7767391	100382645	555	99617355	18	
43	6044573	2875	103955427	89266221	6427773	3430	103581222	7765457	100383200	555	99616800	17	
44	6047448	2872	103952552	89272235	6431203	3428	103578787	7763521	100383755	556	99616245	16	
45	6050320	2870	103949678	89278245	6434631	3426	103576350	7761586	100384311	556	99615689	15	
46	6053190	2867	103946810	89284251	6438057	3424	103573913	7759649	100384867	556	99615133	14	
47	6056057	2866	103943943	89290252	6441481	3422	103571475	7757712	100385421	557	99614576	13	
48	6058923	2863	103941077	89296249	6444903	3421	103569037	7755775	100385980	558	99614018	12	
49	6061786	2861	103938214	89302244	6448324	3419	103566599	7753836	100386538	558	99613460	11	
50	6064647	2859	103935353	89308231	6451743	3417	103564160	7751895	100387096	558	99612901	10	
51	6067506	2856	103932494	89314215	6455160	3416	103561721	7749953	100387654	559	99612341	9	
52	6070362	2854	103929638	89320194	6458575	3413	103559282	7748010	100388213	559	99611781	8	
53	6073216	2852	103926784	89326170	6461988	3412	103556843	7746067	100388772	560	99611221	7	
54	6076068	2850	103923932	89332141	6465400	3410	103554404	7744124	100389332	560	99610661	6	
55	6078918	2847	103921082	89338108	6468810	3407	103551965	7742181	100389892	560	99610101	5	
56	6081765	2846	103918235	89344070	6472217	3407	103549526	7740238	100390452	561	99609541	4	
57	6084611	2843	103915389	89350029	6475624	3404	103547087	7738295	100391013	561	99608981	3	
58	6087454	2840	103912546	89355983	6479028	3403	103544648	7736352	100391574	562	99608421	2	
59	6090294	2839	103909706	89361933	6482431	340	103542209	7734409	100392136	562	99607861	1	
60	6093133	2839	103906867	89367878	6485831		103541161	7732475	100392698		99607301	0	
	Cofine	Diff	Secant	Coverl	Cotang	Diff	Tang	Verfed	Cofec	D	Sine		

Dec 60

24 Deg		NATURAL SINES, &c								1 lb 10	
	Sine	Diff	Coverf	Cotang	Tang	Cotang.	Secant	Verf	Diff	Cotang	
0	4067366		5932634	2 4585933	4452287	2 2460368	1 0940363	0864545	1184	9135455	60
1	4070024	2658	5929970	2 4569882	4455773	2 2442796	1 0947781	0865729	1184	9134271	59
2	4072681	2657	5927319	2 4553853	4459260	2 2425247	1 0949201	0866913	1185	9133087	58
3	4075337	2656	5924663	2 4537848	4462747	2 2407721	1 0950622	0868098	1186	9131900	57
4	4077993	2656	5922007	2 4521865	4466236	2 2390218	1 0952044	0869284	1187	9130716	56
5	4080649	2656	5919351	2 4505905	4469726	2 2372738	1 0953467	0870471	1187	9129529	55
6	4083305	2656	5916695	2 4489968	4473216	2 2355280	1 0954890	0871658	1188	9128344	54
7	4085960	2655	5914040	2 4474054	4476708	2 2337845	1 0956318	0872846	1189	9127154	53
8	4088615	2655	5911385	2 4458163	4480200	2 2320433	1 0957746	0874035	1190	9125965	52
9	4091269	2654	5908731	2 4442294	4483693	2 2303043	1 0959174	0875225	1191	9124775	51
10	4093923	2654	5906077	2 4426448	4487187	2 2285676	1 0960604	0876416	1191	9123584	50
11	4096577	2654	5903423	2 4410624	4490682	2 2268331	1 0962036	0877607	1192	9122393	49
12	4099230	2653	5900770	2 4394823	4494178	2 2251009	1 0963468	0878799	1193	9121201	48
13	4101883	2653	5898117	2 4379045	4497675	2 2233709	1 0964902	0879992	1193	9120006	47
14	4104536	2653	5895464	2 4363289	4501173	2 2216432	1 0966337	0881185	1195	9118815	46
15	4107189	2653	5892811	2 4347555	4504672	2 2199177	1 0967774	0882380	1195	9117620	45
16	4109841	2652	5890159	2 4331844	4508171	2 2181944	1 0969212	0883575	1196	9116425	44
17	4112492	2651	5887508	2 4316155	4511672	2 2164733	1 0970651	0884771	1196	9115229	43
18	4115144	2652	5884856	2 4300489	4515173	2 2147545	1 0972091	0885967	1198	9114033	42
19	4117795	2651	5882205	2 4284844	4518676	2 2130379	1 0973533	0887165	1198	9112835	41
20	4120443	2650	5879555	2 4269212	4522179	2 2113234	1 0974976	0888363	1199	9111637	40
21	4123096	2651	5876904	2 4253622	4525683	2 2096112	1 0976420	0889562	1200	9110438	39
22	4125745	2649	5874255	2 4238044	4529188	2 2079012	1 0977866	0890762	1200	9109238	38
23	4128395	2650	5871605	2 4222488	4532694	2 2061934	1 0979313	0891962	1201	9108038	37
24	4131044	2649	5868956	2 4206954	4536201	2 2044878	1 0980761	0893163	1202	9106837	36
25	4133693	2649	5866307	2 4191442	4539709	2 2027843	1 0982211	0894365	1203	9105635	35
26	4136342	2649	5863658	2 4175952	4543218	2 2010831	1 0983662	0895568	1204	9104432	34
27	4138990	2648	5861010	2 4160484	4546728	2 1993840	1 0985114	0896772	1204	9103228	33
28	4141638	2648	5858362	2 4145038	4550238	2 1976871	1 0986568	0897976	1205	9102024	32
29	4144285	2647	5855715	2 4129613	4553750	2 1959923	1 0988023	0899181	1206	9100819	31
30	4146932	2647	5853068	2 4114210	4557263	2 1942997	1 0989479	0900387	1207	9099613	30
31	4149579	2647	5850421	2 4098829	4560776	2 1926093	1 0990936	0901594	1207	9098406	29
32	4152226	2647	5847774	2 4083469	4564290	2 1909210	1 0992395	0902801	1209	9097199	28
33	4154872	2646	5845128	2 4068132	4567806	2 1892349	1 0993855	0904010	1209	9095990	27
34	4157517	2645	5842483	2 4052815	4571322	2 1875510	1 0995317	0905219	1209	9094781	26
35	4160163	2646	5839837	2 4037520	4574839	2 1858691	1 0996779	0906428	1211	9093572	25
36	4162808	2645	5837192	2 4022247	4578357	2 1841894	1 0998243	0907639	1211	9092361	24
37	4165453	2645	5834547	2 4006995	4581877	2 1825119	1 0999709	0908850	1212	9091150	23
38	4168097	2644	5831903	2 3991764	4585397	2 1808364	1 1001175	0910062	1213	9089938	22
39	4170741	2644	5829259	2 3976555	4588918	2 1791631	1 1002644	0911275	1214	9088725	21
40	4173385	2644	5826615	2 3961367	4592439	2 1774920	1 1004113	0912489	1214	9087511	20
41	4176028	2643	5823972	2 3946201	4595962	2 1758229	1 1005584	0913703	1215	9086297	19
42	4178671	2643	5821329	2 3931055	4599486	2 1741559	1 1007056	0914918	1216	9085082	18
43	4181313	2644	5818687	2 3915931	4603011	2 1724911	1 1008529	0916134	1217	9083866	17
44	4183956	2643	5816044	2 3900828	4606537	2 1708283	1 1010004	0917351	1217	9082649	16
45	4186597	2641	5813403	2 3885746	4610063	2 1691677	1 1011480	0918568	1218	9081432	15
46	4189239	2642	5810761	2 3870685	4613591	2 1675091	1 1012957	0919786	1219	9080214	14
47	4191880	2641	5808120	2 3855645	4617119	2 1658527	1 1014436	0921005	1220	9078995	13
48	4194521	2641	5805479	2 3840625	4620649	2 1641983	1 1015916	0922225	1221	9077775	12
49	4197161	2640	5802839	2 3825627	4624179	2 1625460	1 1017397	0923446	1221	9076554	11
50	4199801	2640	5800199	2 3810650	4627710	2 1608958	1 1018879	0924667	1222	9075333	10
51	4202441	2640	5797559	2 3795694	4631243	2 1592476	1 1020363	0925889	1223	9074111	9
52	4205080	2639	5794920	2 3780758	4634776	2 1576015	1 1021849	0927112	1223	9072888	8
53	4207719	2639	5792281	2 3765843	4638310	2 1559575	1 1023335	0928335	1225	9071665	7
54	4210358	2639	5789642	2 3750949	4641845	2 1543156	1 1024823	0929560	1225	9070440	6
55	4212996	2638	5787004	2 3736075	4645382	2 1526757	1 1026313	0930785	1226	9069215	5
56	4215634	2638	5784366	2 3721222	4648919	2 1510378	1 1027803	0932011	1227	9067989	4
57	4218272	2637	5781728	2 3706390	4652457	2 1494021	1 1029295	0933238	1227	9066762	3
58	4220909	2637	5779091	2 3691578	4655996	2 1477683	1 1030789	0934465	1228	9065535	2
59	4223546	2637	5776454	2 3676787	4659536	2 1461366	1 1032283	0935693	1229	9064307	1
60	4226183	2637	5773817	2 3662016	4663077	2 1445069	1 1033779	0936922		9063078	0
	Cotang	Diff	Verf.	Secant	Cotang.	Tang.	Cotang.	Cotang.	Diff	Sine	

24 Deg

Log, Sines, &c

(297)

	Sine	Diff	Cosec	Verifed	Tang.	Diff	Cotang	Coverf	Secant	D	Cofine	
0	9 6093133	1836	10 3906867	8 9367878	9 6485831	3399	10 3514169	9 7732475	10 0392698		9 9607302	60
1	9 6095969	2834	10 3904031	8 9373819	9 6489230	3398	10 3510770	9 7730530	10 0393261	563	9 9606739	59
2	9 6098803	2832	10 3901197	8 9379756	9 6492628	3398	10 3507372	9 7728583	10 0393824	563	9 9606176	58
3	9 6101635	2830	10 3898365	8 9385689	9 6496023	3395	10 3503977	9 7726636	10 0394388	564	9 9605612	57
4	9 6104465	2828	10 3895535	8 9391618	9 6499417	3394	10 3500583	9 7724689	10 0394952	564	9 9605048	56
5	9 6107293	2825	10 3892707	8 9397544	9 6502809	3392	10 3497191	9 7722741	10 0395516	564	9 9604484	55
6	9 6110118	2823	10 3889882	8 9403462	9 6506199	3390	10 3493801	9 7720794	10 0396081	565	9 9603919	54
7	9 6112941	2821	10 3887059	8 9409378	9 6509587	3388	10 3490413	9 7718843	10 0396646	565	9 9603354	53
8	9 6115762	2818	10 3884238	8 9415290	9 6512974	3387	10 3487026	9 7716893	10 0397212	566	9 9602788	52
9	9 6118580	2817	10 3881420	8 9421197	9 6516359	3385	10 3483641	9 7714942	10 0397778	566	9 9602222	51
10	9 6121397	2814	10 3878603	8 9427101	9 6519742	3383	10 3480258	9 7712991	10 0398345	567	9 9601655	50
11	9 6124211	2812	10 3875789	8 9433000	9 6523123	3381	10 3476877	9 7711039	10 0398912	567	9 9601088	49
12	9 6127023	2810	10 3872977	8 9438895	9 6526503	3380	10 3473497	9 7709087	10 0399480	568	9 9600520	48
13	9 6129833	2808	10 3870167	8 9444785	9 6529881	3378	10 3470119	9 7707134	10 0400048	568	9 9599952	47
14	9 6132641	2805	10 3867359	8 9450672	9 6533257	3376	10 3466743	9 7705180	10 0400616	569	9 9599384	46
15	9 6135446	2804	10 3864554	8 9456554	9 6536631	3374	10 3463369	9 7703225	10 0401185	569	9 9598815	45
16	9 6138250	2801	10 3861750	8 9462433	9 6540004	3373	10 3459996	9 7701271	10 0401754	570	9 9598246	44
17	9 6141051	2799	10 3858949	8 9468307	9 6543375	3371	10 3456625	9 7699315	10 0402324	570	9 9597676	43
18	9 6143850	2797	10 3856150	8 9474177	9 6546744	3368	10 3453256	9 7697359	10 0402894	571	9 9597106	42
19	9 6146647	2794	10 3853353	8 9480042	9 6550112	3365	10 3449888	9 7695402	10 0403465	571	9 9596535	41
20	9 6149441	2793	10 3850559	8 9485904	9 6553477	3364	10 3446523	9 7693444	10 0404036	571	9 9595964	40
21	9 6152234	2790	10 3847766	8 9491761	9 6556841	3363	10 3443159	9 7691486	10 0404607	572	9 9595393	39
22	9 6155024	2788	10 3844976	8 9497615	9 6560204	3360	10 3439796	9 7689528	10 0405179	572	9 9594821	38
23	9 6157812	2787	10 3842188	8 9503464	9 6563564	3359	10 3436436	9 7687568	10 0405752	573	9 9594248	37
24	9 6160599	2783	10 3839401	8 9509309	9 6566923	3357	10 3433077	9 7685608	10 0406325	573	9 9593675	36
25	9 6163382	2782	10 3836618	8 9515150	9 6570280	3356	10 3429720	9 7683648	10 0406898	574	9 9593102	35
26	9 6166164	2780	10 3833836	8 9520987	9 6573636	3353	10 3426364	9 7681687	10 0407472	574	9 9592528	34
27	9 6168944	2777	10 3831056	8 9526820	9 6576989	3352	10 3423011	9 7679725	10 0408046	574	9 9591954	33
28	9 6171721	2775	10 3828279	8 9532648	9 6580341	3351	10 3419659	9 7677762	10 0408620	575	9 9591380	32
29	9 6174496	2774	10 3825504	8 9538473	9 6583692	3351	10 3416308	9 7675799	10 0409195	576	9 9590805	31
30	9 6177270	2771	10 3822730	8 9544294	9 6587041	3349	10 3412959	9 7673835	10 0409771	576	9 9590229	30
31	9 6180041	2768	10 3819959	8 9550110	9 6590387	3346	10 3409613	9 7671871	10 0410347	576	9 9589653	29
32	9 6182809	2767	10 3817191	8 9555922	9 6593733	3346	10 3406267	9 7669906	10 0410923	577	9 9589077	28
33	9 6185576	2765	10 3814424	8 9561731	9 6597076	3343	10 3402924	9 7667940	10 0411500	577	9 9588500	27
34	9 6188341	2762	10 3811659	8 9567535	9 6600418	3342	10 3399582	9 7665974	10 0412077	577	9 9587923	26
35	9 6191103	2761	10 3808897	8 9573335	9 6603758	3340	10 3396242	9 7664007	10 0412655	578	9 9587345	25
36	9 6193864	2758	10 3806136	8 9579131	9 6607097	3339	10 3392903	9 7662040	10 0413233	578	9 9586767	24
37	9 6196622	2756	10 3803378	8 9584923	9 6610434	3337	10 3389566	9 7660072	10 0413812	579	9 9586188	23
38	9 6199378	2754	10 3800622	8 9590711	9 6613769	3335	10 3386231	9 7658103	10 0414391	579	9 9585609	22
39	9 6202132	2752	10 3797868	8 9596495	9 6617103	3334	10 3382897	9 7656134	10 0414970	579	9 9585030	21
40	9 6204884	2750	10 3795116	8 9602275	9 6620434	3331	10 3379566	9 7654164	10 0415550	580	9 9584450	20
41	9 6207634	2748	10 3792366	8 9608051	9 6623765	3328	10 3376235	9 7652193	10 0416131	581	9 9583869	19
42	9 6210382	745	10 3789618	8 9613823	9 6627093	3327	10 3372907	9 7650222	10 0416712	581	9 9583288	18
43	9 6213127	2744	10 3786873	8 9619591	9 6630420	3325	10 3369580	9 7648250	10 0417293	582	9 9582707	17
44	9 6215871	2741	10 3784129	8 9625355	9 6633745	3324	10 3366255	9 7646277	10 0417875	582	9 9582125	16
45	9 6218612	2739	10 3781388	8 9631114	9 6637069	3322	10 3362931	9 7644304	10 0418457	582	9 9581543	15
46	9 6221351	2737	10 3778649	8 9636870	9 6640391	3320	10 3359609	9 7642330	10 0419039	583	9 9580961	14
47	9 6224088	2736	10 3775912	8 9642622	9 6643711	3319	10 3356289	9 7640356	10 0419622	584	9 9580378	13
48	9 6226824	2733	10 3773176	8 9648370	9 6647030	3316	10 3352970	9 7638381	10 0420206	584	9 9579794	12
49	9 6229557	2730	10 3770443	8 9654114	9 6650346	3316	10 3349654	9 7636405	10 0420790	584	9 9579210	11
50	9 6232287	2729	10 3767713	8 9659854	9 6653662	3313	10 3346338	9 7634429	10 0421374	585	9 9578626	10
51	9 6235016	2727	10 3764984	8 9665590	9 6656975	3313	10 3343025	9 7632452	10 0421957	585	9 9578041	9
52	9 6237743	2725	10 3762257	8 9671322	9 6660288	3313	10 3339712	9 7630474	10 0422544	586	9 9577456	8
53	9 6240468	2722	10 3759532	8 9677050	9 6663598	3310	10 3336402	9 7628496	10 0423130	586	9 9576870	7
54	9 6243190	2721	10 3756810	8 9682774	9 6666907	3309	10 3333093	9 7626517	10 0423716	587	9 9576284	6
55	9 6245911	2718	10 3754089	8 9688494	9 6670214	3305	10 3329786	9 7624537	10 0424303	587	9 9575697	5
56	9 6248629	2717	10 3751371	8 9694210	9 6673519	3304	10 3326481	9 7622557	10 0424890	588	9 9575110	4
57	9 6251346	2714	10 3748654	8 9699922	9 6676823	3303	10 3323177	9 7620577	10 0425478	588	9 9574522	3
58	9 6254060	2712	10 3745940	8 9705630	9 6680126	3300	10 3319874	9 7618595	10 0426066	588	9 9573934	2
59	9 6256772	2711	10 3743228	8 9711338	9 6683426	3300	10 3316574	9 7616613	10 0426654	589	9 9573346	1
60	9 6259483		10 3740517	8 9717035	9 6686725	3300	10 3313275	9 7614630	10 0427243		9 9572757	0
	Sine	Diff	Secant	Coverf	Cotang.	Diff	Tang	Verifed	Cosec.	D	Sine	

P P

Deg. 65

25 Deg NATURAL SINES, &c Tab. 10										
Sine	Diff	Coverf.	Cofec	Tang	Cotang.	Secant	Verl.	Diff	Cofine	
0 4226183	2636	5773817	2 3662016	4663077	2 1445069	1 1033779	0936922	1230	9063078	60
1 4228819	2636	5771181	2 3647265	4666618	2 1428793	1 1035277	0938152	1230	9061848	59
2 4231455	2635	5768545	2 3632535	4670161	2 1412537	1 1036775	0939382	1232	9060618	58
3 4234090	2635	5765910	2 3617826	4673705	2 1396301	1 1038275	0940614	1232	9059386	57
4 4236725	2635	5763275	2 3603136	4677250	2 1380085	1 1039777	0941846	1232	9058154	56
5 4239360	2635	5760640	2 3588467	4680796	2 1363890	1 1041279	0943078	1234	9056922	55
6 4241994	2634	5758006	2 3573818	4684342	2 1347714	1 1042783	0944312	1234	9055688	54
7 4244628	2634	5755372	2 3559189	4687890	2 1331559	1 1044289	0945546	1235	9054454	53
8 4247262	2633	5752738	2 3544581	4691439	2 1315423	1 1045795	0946781	1236	9053219	52
9 4249895	2633	5750105	2 3529992	4694988	2 1299308	1 1047303	0948017	1237	9051984	51
10 4252528	2633	5747472	2 3515424	4698539	2 1283213	1 1048813	0949254	1237	9050746	50
11 4255161	2632	5744839	2 3500875	4702090	2 1267137	1 1050324	0950491	1238	9049509	49
12 4257793	2632	5742207	2 3486347	4705643	2 1251082	1 1051836	0951729	1239	9048271	48
13 4260425	2631	5739575	2 3471838	4709196	2 1235046	1 1053349	0952968	1240	904703	47
14 4263056	2631	5736944	2 3457349	4712751	2 1219030	1 1054864	0954208	1241	9045792	46
15 4265687	2631	5734313	2 3442881	4716306	2 1203034	1 1056380	0955449	1241	9044551	45
16 4268318	2631	5731682	2 3428432	4719863	2 1187057	1 1057898	0956690	1242	9043310	44
17 4270949	2630	5729051	2 3414002	4723420	2 1171101	1 1059417	0957932	1243	9042068	43
18 4273579	2629	5726421	2 3399593	4726978	2 1155164	1 1060937	0959175	1243	9040825	42
19 4276208	2630	5723792	2 3385203	4730538	2 1139246	1 1062458	0960418	1244	9039582	41
20 4278838	2629	5721162	2 3370833	4734098	2 1123348	1 1063981	0961662	1245	9038338	40
21 4281467	2628	5718533	2 3356482	4737659	2 1107470	1 1065506	0962907	1246	9037093	39
22 4284095	2628	5715905	2 3342152	4741222	2 1091611	1 1067031	0964153	1247	9035847	38
23 4286723	2628	5713277	2 3327840	4744785	2 1075771	1 1068558	0965400	1247	9034600	37
24 4289351	2628	5710649	2 3313548	4748349	2 1059951	1 1070087	0966647	1248	9033353	36
25 4291979	2627	5708021	2 3299276	4751914	2 1044150	1 1071616	0967895	1249	9032105	35
26 4294606	2627	5705394	2 3285023	4755481	2 1028369	1 1073147	0969144	1250	9030856	34
27 4297233	2626	5702767	2 3270790	4759048	2 1012607	1 1074680	0970394	1250	9029606	33
28 4299859	2626	5700141	2 3256575	4762616	2 0996864	1 1076214	0971644	1251	9028356	32
29 4302485	2626	5697515	2 3242381	4766185	2 0981140	1 1077747	0972895	1252	9027105	31
30 4305111	2625	5694889	2 3228205	4769755	2 0965436	1 1079285	0974147	1253	9025853	30
31 4307736	2625	5692264	2 3214049	4773326	2 0949751	1 1080823	0975400	1253	9024601	29
32 4310361	2625	5689639	2 3199912	4776899	2 0934085	1 1082363	0976653	1255	9023347	28
33 4312986	2624	5687014	2 3185794	4780472	2 0918437	1 1083903	0977908	1254	9022092	27
34 4315610	2624	5684390	2 3171695	4784046	2 0902809	1 1085445	0979162	1256	9020838	26
35 4318234	2624	5681766	2 3157615	4787621	2 0887200	1 1086989	0980418	1257	9019582	25
36 4320857	2623	5679143	2 3143554	4791197	2 0871610	1 1088533	0981675	1257	9018325	24
37 4323481	2622	5676519	2 3129513	4794774	2 0856039	1 1090079	0982932	1258	9017068	23
38 4326103	2622	5673897	2 3115490	4798352	2 0840487	1 1091627	0984190	1259	9015810	22
39 4328726	2622	5671274	2 3101486	4801932	2 0824953	1 1093176	0985449	1259	9014551	21
40 4331348	2622	5668652	2 3087501	4805512	2 0809438	1 1094726	0986708	1261	9013292	20
41 4333970	2621	5666030	2 3073536	4809093	2 0793942	1 1096277	0987969	1261	9012031	19
42 4336591	2621	5663409	2 3059588	4812675	2 0778465	1 1097830	0989230	1262	9010770	18
43 4339212	2620	5660788	2 3045660	4816258	2 0763007	1 1099385	0990492	1262	9009508	17
44 4341832	2621	5658168	2 3031751	4819842	2 0747567	1 1100940	0991754	1264	9008246	16
45 4344453	2619	5655547	2 3017860	4823427	2 0732146	1 1102498	0993018	1264	9006982	15
46 4347072	2620	5652928	2 3003988	4827014	2 0716743	1 1104056	0994282	1265	9005718	14
47 4349692	2619	5650308	2 2990134	4830601	2 0701359	1 1105616	0995547	1265	9004453	13
48 4352311	2619	5647689	2 2976299	4834189	2 0685994	1 1107177	0996812	1267	9003184	12
49 4354930	2618	5645070	2 2962483	4837778	2 0670646	1 1108740	0998079	1267	9001921	11
50 4357548	2618	5642452	2 2948685	4841368	2 0655318	1 1110304	0999346	1268	9000654	10
51 4360166	2618	5639834	2 2934906	4844959	2 0640008	1 1111869	1000614	1266	8999386	9
52 4362784	2618	5637216	2 2921145	4848552	2 0624716	1 1113436	1001883	1266	8998117	8
53 4365401	2617	5634599	2 2907403	4852145	2 0609442	1 1115004	1003152	1270	8996848	7
54 4368018	2616	5631982	2 2893679	4855739	2 0594187	1 1116573	1004422	1271	8995578	6
55 4370634	2617	5629366	2 2879974	4859334	2 0578950	1 1118144	1005693	1272	899430	5
56 4373251	2615	5626749	2 2866286	4862931	2 0563732	1 1119716	1006965	1272	8993035	4
57 4375866	2616	5624134	2 2852618	4866528	2 0548531	1 1121290	1008237	1274	8991763	3
58 4378482	2615	5621518	2 2838967	4870126	2 0533349	1 1122865	1009511	1274	8990489	2
59 4381097	2614	5618903	2 2825335	4873726	2 0518185	1 1124442	1010785	1275	8989215	1
60 4383711	2614	5616289	2 2811720	4877326	2 0503038	1 1126019	1012060		8987940	0
Cofine	Diff	Verf.	Secant	Cotan.	Tang.	Cofec.	Coverf.	Diff	Sine	

Log Sines, &c												(499)
15 Deg	Sine	Diff	Cofec	Verfedf	Tang	Diff	Cotang	Coverf	Secant	D	Cofine	
0	64483	2708	10 3740517	8 9717035	9 6686725	3298	10 3313475	9 7614630	10 0427243	589	9 9574757	60
1	616191	2706	10 3737809	8 9722731	9 6690023	3296	10 3309977	9 7612647	10 0427832	590	9 9574168	59
2	6164897	2704	10 3735103	8 9728424	9 6693319	3294	10 3306681	9 7610663	10 0428422	590	9 9573578	58
3	6167601	2702	10 3732399	8 9734113	9 6696613	3293	10 3303387	9 7608679	10 0429012	591	9 9572988	57
4	6170303	2700	10 3729697	8 9739797	9 6699906	3291	10 3300094	9 7606693	10 0429603	591	9 9572397	56
5	6173003	2698	10 3726997	8 9745478	9 6703197	3289	10 3296803	9 7604707	10 0430194	591	9 9571806	55
6	6175701	2696	10 3724299	8 9751155	9 6706486	3288	10 3293514	9 7602721	10 0430785	591	9 9571215	54
7	6178397	2693	10 3721603	8 9756828	9 6709774	3286	10 3290226	9 7600734	10 0431377	592	9 9570624	53
8	6181091	2692	10 3718910	8 9762497	9 6713060	3285	10 3286940	9 7598746	10 0431970	593	9 9570033	52
9	6183783	2690	10 3716218	8 9768163	9 6716345	3283	10 3283655	9 7596758	10 0432563	593	9 9569442	51
10	6186472	2688	10 3713528	8 9773824	9 6719628	3282	10 3280372	9 7594769	10 0433156	594	9 9568851	50
11	6189160	2685	10 3710840	8 9779482	9 6722910	3280	10 3277090	9 7592779	10 0433750	594	9 9568260	49
12	6191845	2684	10 3708155	8 9785135	9 6726190	3278	10 3273810	9 7590789	10 0434344	595	9 9567669	48
13	6194529	2682	10 3705471	8 9790785	9 6729468	3277	10 3270532	9 7588798	10 0434939	595	9 9567078	47
14	6197211	2679	10 3702789	8 9796431	9 6732745	3275	10 3267255	9 7586806	10 0435534	596	9 9566486	46
15	6199890	2678	10 3700110	8 9802073	9 6736020	3274	10 3263980	9 7584814	10 0436130	596	9 9565895	45
16	6202568	2675	10 3697432	8 9807711	9 6739294	3272	10 3260706	9 7582821	10 0436726	596	9 9565304	44
17	6205243	2674	10 3694757	8 9813346	9 6742566	3270	10 3257434	9 7580827	10 0437322	597	9 9564713	43
18	6207917	2672	10 3692083	8 9818976	9 6745836	3269	10 3254164	9 7578833	10 0437919	598	9 9564122	42
19	6210589	2669	10 3689411	8 9824603	9 6749105	3267	10 3250895	9 7576838	10 0438517	597	9 9563531	41
20	6213258	2668	10 3686742	8 9830226	9 6752372	3266	10 3247628	9 7574843	10 0439114	599	9 9562940	40
21	6215926	2665	10 3684074	8 9835845	9 6755638	3265	10 3244362	9 7572847	10 0439713	598	9 9562349	39
22	6218591	2664	10 3681409	8 9841460	9 6758903	3262	10 3241097	9 7570850	10 0440311	600	9 9561758	38
23	6221255	2661	10 3678745	8 9847072	9 6762165	3261	10 3237835	9 7568852	10 0440911	599	9 9561167	37
24	6223916	2660	10 3676084	8 9852679	9 6765428	3260	10 3234574	9 7566854	10 0441510	600	9 9560576	36
25	6226576	2657	10 3673424	8 9858283	9 6768686	3258	10 3231314	9 7564856	10 0442110	601	9 9559985	35
26	6229233	2656	10 3670767	8 9863883	9 6771944	3257	10 3228056	9 7562856	10 0442711	601	9 9559394	34
27	6231889	2653	10 3668111	8 9869480	9 6775201	3255	10 3224799	9 7560856	10 0443312	601	9 9558803	33
28	6234542	2652	10 3665458	8 9875072	9 6778456	3253	10 3221544	9 7558856	10 0443913	602	9 9558212	32
29	6237194	2650	10 3662806	8 9880661	9 6781709	3252	10 3218291	9 7556855	10 0444515	603	9 9557621	31
30	6239844	2647	10 3660156	8 9886246	9 6784961	3250	10 3215039	9 7554853	10 0445118	602	9 9557030	30
31	6242491	2646	10 3657509	8 9891827	9 6788211	3249	10 3211789	9 7552850	10 0445720	604	9 9556439	29
32	6245137	2643	10 3654863	8 9897404	9 6791460	3248	10 3208540	9 7550847	10 0446324	603	9 9555848	28
33	6247780	2642	10 3652220	8 9902978	9 6794708	3245	10 3205292	9 7548843	10 0446927	604	9 9555257	27
34	6250422	2640	10 3649578	8 9908548	9 6797953	3245	10 3202047	9 7546839	10 0447531	605	9 9554666	26
35	6253062	2637	10 3646938	8 9914114	9 6801198	3244	10 3198802	9 7544833	10 0448136	605	9 9554075	25
36	6255699	2636	10 3644301	8 9919676	9 6804445	3242	10 3195560	9 7542828	10 0448741	606	9 9553484	24
37	6258335	2634	10 3641663	8 9925235	9 6807682	3239	10 3192318	9 7540821	10 0449347	606	9 9552893	23
38	6260969	63	10 3639031	8 9930790	9 6810921	3239	10 3189076	9 7538814	10 0449953	606	9 9552302	22
39	6263601	2630	10 3636399	8 9936341	9 6814160	3236	10 3185840	9 7536806	10 0450559	607	9 9551711	21
40	6266231	2628	10 3633769	8 9941888	9 6817396	3236	10 3182604	9 7534798	10 0451166	607	9 9551120	20
41	6268859	2625	10 3631141	8 9947432	9 6820632	3233	10 3179368	9 7532789	10 0451773	608	9 9550529	19
42	6271484	2624	10 3628516	8 9952972	9 6823865	3233	10 3176135	9 7530779	10 0452381	608	9 9549938	18
43	6274108	2623	10 3625892	8 9958508	9 6827098	3230	10 3172902	9 7528769	10 0452989	609	9 9549347	17
44	6276731	2620	10 3623269	8 9964041	9 6830328	3229	10 3169672	9 7526758	10 0453598	609	9 9548756	16
45	6279351	2618	10 3620649	8 9969569	9 6833557	3228	10 3166443	9 7524746	10 0454207	609	9 9548165	15
46	6281969	2616	10 3618031	8 9975095	9 6836785	3226	10 3163215	9 7522734	10 0454816	610	9 9547574	14
47	6284585	2614	10 3615415	8 9980616	9 6840011	3225	10 3159989	9 7520721	10 0455426	611	9 9546983	13
48	6287199	2613	10 3612801	8 9986134	9 6843236	3223	10 3156764	9 7518708	10 0456037	611	9 9546392	12
49	6289812	2610	10 3610188	8 9991648	9 6846459	3222	10 3153541	9 7516694	10 0456648	611	9 9545801	11
50	6292422	2608	10 3607578	8 9997158	9 6849681	3220	10 3150319	9 7514679	10 0457259	612	9 9545210	10
51	6295030	2607	10 3604970	8 0002665	9 6852901	3219	10 3147099	9 7512663	10 0457871	612	9 9544619	9
52	6297637	2604	10 3602363	8 0008168	9 6856120	3218	10 3143880	9 7510647	10 0458483	613	9 9544028	8
53	6300241	2603	10 3599759	8 0013667	9 6859338	3215	10 3140662	9 7508630	10 0459096	613	9 9543437	7
54	6302844	2601	10 3597156	8 0019163	9 6862553	3215	10 3137447	9 7506613	10 0459709	614	9 9542846	6
55	6305445	2599	10 3594555	8 0024655	9 6865768	3213	10 3134232	9 7504595	10 0460323	614	9 9542255	5
56	6308044	2596	10 3591956	8 0030144	9 6868981	3211	10 3131019	9 7502576	10 0460937	615	9 9541664	4
57	6310640	2595	10 3589360	8 0035628	9 6872192	3210	10 3127808	9 7500556	10 0461552	615	9 9541073	3
58	6313235	2593	10 3586765	8 0041109	9 6875402	3209	10 3124598	9 7498536	10 0462167	615	9 9540482	2
59	6315828	2592	10 3584172	8 0046587	9 6878611	3207	10 3121389	9 7496516	10 0462782	616	9 9539891	1
60	6318420		10 3581580	8 0052061	9 6881818		10 3118182	9 7494494	10 0463398		9 9539300	
	Cofine	Diff	Secant	Coverf	Cotang	Diff	Tang	Verfedf	Cofec	D	Sine	Deg

26 Deg		NATURAL SINES, &c							Tab 16	
	Sine	Diff	Coverd	Cotec	1 ing	Cotang	Secant	Verf	Diff	Cohne
0	4383711	2615	5616289	2 2811720	4877326	2 0503038	1 1126019	1012060	1275	8987940
1	4386326	2614	5613674	2 2798124	4880927	2 0487910	1 1127599	1013335	1276	8986665
2	4388940	2613	5611060	2 2784546	4884530	2 0472800	1 1129179	1014611	1277	8985389
3	4391553	2613	5608447	2 2770987	4888133	2 0457708	1 1130761	1015888	1278	8984112
4	4394166	2613	5605834	2 2757445	4891737	2 0442634	1 1132345	1017166	1279	8982834
5	4396779	2613	5603221	2 2743921	4895343	2 0427578	1 1133929	1018445	1279	8981555
6	4399392	2612	5600608	2 2730415	4898949	2 0412540	1 1135516	1019724	1280	8980276
7	4402004	2611	5597996	2 2716927	4902557	2 0397519	1 1137103	1021004	1281	8978996
8	4404615	2612	5595385	2 2703457	4906166	2 0382517	1 1138692	1022285	1282	8977715
9	4407227	2611	5592773	2 2690005	4909775	2 0367532	1 1140282	1023567	1282	8976433
10	4409838	2610	5590162	2 2676571	4913386	2 0352565	1 1141874	1024849	1283	8975151
11	4412448	2611	5587552	2 2663155	4916997	2 0337615	1 1143467	1026132	1284	8973868
12	4415059	2609	5584941	2 2649756	4920610	2 0322683	1 1145062	1027416	1285	8972584
13	4417668	2610	5582332	2 2636376	4924224	2 0307769	1 1146658	1028701	1285	8971299
14	4420278	2609	5579722	2 2623012	4927838	2 0292873	1 1148255	1029986	1287	8970014
15	4422887	2609	5577113	2 2609667	4931454	2 0277994	1 1149854	1031273	1287	8968727
16	4425496	2608	5574504	2 2596339	4935071	2 0263133	1 1151454	1032560	1287	8967440
17	4428104	2608	5571896	2 2583029	4938689	2 0248289	1 1153056	1033847	1289	8966153
18	4430712	2607	5569288	2 2569736	4942308	2 0233462	1 1154659	1035136	1289	8964864
19	4433319	2608	5566681	2 2556461	4945928	2 0218654	1 1156263	1036425	1290	8963575
20	4435927	2607	5564073	2 2543204	4949549	2 0203862	1 1157869	1037715	1291	8962285
21	4438534	2606	5561466	2 2529964	4953171	2 0189088	1 1159476	1039006	1291	8960994
22	4441140	2606	5558860	2 2516741	4956794	2 0174331	1 1161084	1040297	1291	8959703
23	4443746	2606	5556254	2 2503536	4960418	2 0159592	1 1162694	1041589	1291	8958411
24	4446352	2605	5553648	2 2490348	4964043	2 0144869	1 1164306	1042882	1293	8957118
25	4448957	2605	5551043	2 2477178	4967669	2 0130164	1 1165919	1044176	1294	8955824
26	4451562	2605	5548438	2 2464025	4971297	2 0115477	1 1167533	1045471	1295	8954529
27	4454167	2604	5545833	2 2450889	4974925	2 0100806	1 1169148	1046766	1295	8953234
28	4456771	2604	5543229	2 2437770	4978551	2 0086153	1 1170766	1048062	1296	8951938
29	4459375	2603	5540625	2 2424669	4982185	2 0071516	1 1172384	1049359	1297	8950641
30	4461978	2603	5538022	2 2411585	4985816	2 0056897	1 1174004	1050656	1299	8949344
31	4464581	2603	5535419	2 2398517	4989449	2 0042295	1 1175625	1051955	1299	8948045
32	4467184	2602	5532816	2 2385468	4993082	2 0027710	1 1177248	1053254	1300	8946746
33	4469786	2602	5530214	2 2372435	4996717	2 0013142	1 1178872	1054554	1300	8945446
34	4472388	2602	5527612	2 2359419	5000352	2 0000000	1 1180498	1055854	1302	8944146
35	4474990	2601	5525010	2 2346420	5003989	2 0000000	1 1182124	1057156	1302	8942844
36	4477591	2601	5522409	2 2333438	5007627	2 0000000	1 1183753	1058458	1302	8941542
37	4480192	2600	5519808	2 2320474	5011266	2 0000000	1 1185383	1059760	1304	8940240
38	4482792	2600	5517208	2 2307526	5014906	2 0000000	1 1187014	1061064	1304	8938936
39	4485392	2600	5514608	2 2294595	5018547	2 0000000	1 1188647	1062368	1304	8937632
40	4487992	2599	5512008	2 2281681	5022189	2 0000000	1 1190281	1063674	1306	8936326
41	4490591	2599	5509409	2 2268783	5025832	2 0000000	1 1191916	1064979	1305	8935021
42	4493190	2599	5506810	2 2255903	5029476	2 0000000	1 1193553	1066286	1307	8933714
43	4495789	2598	5504211	2 2243039	5033121	2 0000000	1 1195191	1067594	1308	8932406
44	4498387	2597	5501613	2 2230192	5036768	2 0000000	1 1196831	1068902	1309	8931098
45	4500984	2598	5499016	2 2217362	5040415	2 0000000	1 1198472	1070211	1309	8929789
46	4503582	2597	5496418	2 2204548	5044063	2 0000000	1 1199900	1071520	1311	8928480
47	4506179	2596	5493821	2 2191752	5047713	2 0000000	1 1201759	1072831	1311	8927169
48	4508775	2597	5491225	2 2178971	5051363	2 0000000	1 1203405	1074142	1312	8925858
49	4511372	2595	5488628	2 2166208	5055015	2 0000000	1 1205051	1075454	1312	8924546
50	4513967	2596	5486033	2 2153460	5058668	2 0000000	1 1206700	1076766	1314	8923234
51	4516563	2595	5483437	2 2140730	5062322	2 0000000	1 1208350	1078080	1314	8921920
52	4519158	2595	5480842	2 2128016	5065977	2 0000000	1 1210001	1079394	1315	8920606
53	4521753	2595	5478247	2 2115318	5069633	2 0000000	1 1211653	1080709	1316	8919291
54	4524347	2594	5475653	2 2102637	5073290	2 0000000	1 1213308	1082025	1316	8917975
55	4526941	2594	5473059	2 2089972	5076948	2 0000000	1 1214963	1083341	1317	8916659
56	4529535	2593	5470465	2 2077323	5080607	2 0000000	1 1216620	1084658	1318	8915341
57	4532128	2593	5467872	2 2064691	5084267	2 0000000	1 1218278	1085976	1319	8914024
58	4534721	2592	5465279	2 2052075	5087929	2 0000000	1 1219938	1087295	1320	8912705
59	4537313	2592	5462687	2 2039476	5091591	2 0000000	1 1221600	1088615	1320	8911385
60	4539905		5460093	2 2026893	5095254	2 0000000	1 1223262	1089935		8910065
	Cofine	Diff	Verf.	Secant	Cotan.	Tang.	Cofec.	Coverf.	Diff	Sine

26 Deg

Log SINES, &c

(301)

	Sine	Diff	Cofec	Verfed	Tang	Diff	Cotang	Coverd	Secant	D	Cofine	
0	96418420	2580	103581580	90052061	90881818	3205	103118182	97494494	100463390	617	9953662	60
1	96421009	2587	103578991	90057531	90885023	304	103111977	97492472	100461015	616	99535985	59
2	96423596	2586	103576404	90062999	9088827	3203	103111773	97490444	100458631	615	99535369	58
3	96426182	2583	103573818	90068466	90891430	3201	103108570	97488426	100456249	614	99534751	57
4	96428765	2581	103571235	90073920	90894631	300	103105369	97486402	100453866	613	99534131	56
5	96431347	2579	103568653	90079375	90897831	3199	103102169	97484377	100451485	612	99533515	55
6	96433926	2578	103566074	90084819	90901030	3196	103098970	97482352	100449103	611	99532897	54
7	96436504	2576	103563496	90090271	90904216	3196	103095774	97480326	100446722	610	99532278	53
8	96439080	2574	103560920	90095721	9090742	3194	103092578	97478299	100444342	609	99531658	52
9	96441654	2572	103558346	90101162	90910616	3193	103089384	97476272	100441962	608	99531038	51
10	96444226	2570	103555774	90106600	90913809	3191	103086191	97474241	100439582	607	99530418	50
11	96446796	2569	103553204	90112031	90917000	3189	103083000	97472216	100437203	606	99529797	49
12	96449365	2566	103550635	90117465	90920181	3189	103079811	97470186	100434825	605	99529175	48
13	96451931	2565	103548069	90122892	90923378	3187	103076622	97468156	100432447	604	99528553	47
14	96454496	2562	103545504	90128315	90926565	3185	103073435	97466126	100430069	603	99527931	46
15	96457058	2561	103542942	90133735	90929750	3181	103070250	97464095	100427692	602	99527309	45
16	96459619	2559	103540381	90139151	90932934	3183	103067066	97462063	100425315	601	99526685	44
17	96462178	2557	103537822	90144564	90936117	3181	103063883	97460033	100422939	600	99526061	43
18	96464735	2555	103535265	90149973	90939298	3180	103060700	97457997	100420562	599	99525437	42
19	96467290	2554	103532710	90155378	90942476	3178	103057522	97455963	100418187	598	99524813	41
20	96469844	2551	103530156	90160781	90945656	3177	103054344	97453928	100415812	597	99524188	40
21	96472395	2550	103527605	90166179	90948833	3176	103051167	97451893	100413438	596	99523562	39
22	96474945	2547	103525055	90171574	90952009	3174	103047991	97449857	100411064	595	99522936	38
23	96477499	2546	103522508	90176965	90955185	3172	103044817	97447821	100408690	594	99522310	37
24	96480038	544	103519962	90182353	90958357	3172	103041645	97445784	100406317	593	99521684	36
25	96482582	254	103517418	90187738	90961527	3170	103038473	97443746	100403945	592	99521055	35
26	96485124	2541	103514876	90193119	90964697	3168	103035303	97441707	100401572	591	99520428	34
27	96487665	2541	103512335	90198496	90967865	3167	103032135	97439668	100399200	590	99519799	33
28	96490203	538	103509797	90203870	90971032	3166	103028968	97437628	100396828	589	99519171	32
29	96492740	531	103507260	90209240	90974198	3165	103025802	97435588	100394459	588	99518541	31
30	96495274	2533	103504726	90214609	90977363	3164	103022637	97433547	100392088	587	99517912	30
31	96497807	2531	103502193	90220070	90980527	3161	103019471	97431505	100389718	586	99517282	29
32	96500336	2530	103499662	90225531	90983687	3160	103016303	97429462	100387343	585	99516651	28
33	96502868	2527	103497132	90230987	90986844	3159	103013135	97427419	100384968	584	99516020	27
34	96505395	2525	103494605	90236439	90990000	3158	103009969	97425375	100382593	583	99515389	26
35	96507920	2524	103492080	90241889	90993164	3156	103006803	97423331	100380218	582	99514757	25
36	96510444	2522	103489550	90247335	90996320	3151	103003638	97421286	100377843	581	99514124	24
37	96512966	2520	103487034	90252777	90999474	3151	103000472	97419244	100375468	580	99513491	23
38	96515486	2518	103484514	90258216	91002628	3152	102997307	97417201	100373093	579	99512858	22
39	96518001	2517	103481996	90263655	91005780	3150	102994140	97415156	100370718	578	99512225	21
40	96520515	2511	103479479	90269088	91008930	3149	102990970	97413109	100368343	577	99511592	20
41	96523035	2511	103476965	90274517	91012080	3147	102987803	97411060	100365968	576	99510959	19
42	96525551	2511	103474452	90279944	91015227	3147	102984637	97409012	100363593	575	99510326	18
43	96528059	2509	103471941	90285375	91018371	3145	102981470	97406963	100361218	574	99509693	17
44	96530568	2507	103469432	90290807	91021519	3144	102978303	97404914	100358843	573	99509060	16
45	96533075	2506	103466925	90296239	91024663	3142	102975137	97402865	100356468	572	99508427	15
46	96535581	2503	103464419	90301664	91027804	3141	102971970	97400816	100354093	571	99507794	14
47	96538081	502	103461916	90307091	91030946	3140	102968803	97398767	100351718	570	99507161	13
48	96540586	2500	103459414	90312516	91034086	3139	102965637	97396718	100349343	569	99506528	12
49	96543086	498	103456911	90317941	91037225	313	102962470	97394669	100346968	568	99505895	11
50	96545581	2497	103454416	90323365	91040362	313	102959303	97392620	100344593	567	99505262	10
51	96548081	494	103451919	90328790	91043497	3135	102956137	97390571	100342218	566	99504629	9
52	96550575	2493	103449425	90334216	91046632	3135	102952970	97388522	100339843	565	99503996	8
53	96553068	2491	103446932	90339641	91049765	3133	102949803	97386473	100337468	564	99503363	7
54	96555559	2489	103444441	90345067	91052897	3132	102946637	97384424	100335093	563	99502730	6
55	96558048	2488	103441952	90350492	91056022	3130	102943470	97382375	100332718	562	99502097	5
56	96560536	2485	103439464	90355917	91059156	3129	102940303	97380326	100330343	561	99501464	4
57	96563021	2484	103436979	90361342	91062284	3128	102937137	97378277	100327968	560	99500831	3
58	96565505	2482	103434495	90366767	91065410	3126	102933970	97376228	100325593	559	99500198	2
59	96567987	2481	103432013	90372192	91068535	3125	102930803	97374179	100323218	558	99499565	1
60	96570468		103429523	90377617	91071659	3124	102927637	97372130	100320843	557	99498932	0
	Cofine	Diff	Secant	Coverd	Cotang	Diff	Tang	Verfed	Cofec	D	Sine	T

27 Deg		NATURAL SINES, &c.								Tab 10	
	Sine	Diff	Coverf	Cofec	Tang	Cotang	Secant	Veri	Diff	Coline	
0	4539905	2592	5460095	2 2026893	5095-54	1 9626105	1 1223262	1089935	1321	8910065	60
1	4542497	2591	5457503	2 2014326	5098919	1 9612000	1 1224927	1091-56	1321	8908744	59
2	4545088	2591	5454912	2 2001775	510-585	1 9597910	1 122659-	1092577	1321	8907423	58
3	4547679	2590	5452321	2 1989240	5106252	1 9583837	1 1228259	1093909	1323	8906100	57
4	4550269	2590	5449731	2 1976721	5109919	1 9569780	1 1229928	1095223	1323	8904777	56
5	4552859	2590	5447141	2 1964219	5113588	1 9555739	1 1231598	1096547	1324	8903453	55
6	4555449	2589	5444551	2 1951733	5117259	1 9541713	1 1233269	1097872	1325	8902128	54
7	4558038	2589	5441962	2 1939262	5120930	1 9527704	1 123494-	1099197	1327	8900803	53
8	4560627	2589	5439373	2 1926808	5124602	1 9513711	1 1236616	1100524	1327	8899476	52
9	4563216	2588	5436784	2 1914370	51-8275	1 9499733	1 1238292	1101851	1327	8898149	51
10	4565804	2588	5434196	2 1901947	5131950	1 9485772	1 1239969	1103178	1327	8896822	50
11	4568392	2587	5431608	2 1889541	5135625	1 9471826	1 1241648	1104507	1329	8895493	49
12	4570979	2587	5429021	2 1877150	5139302	1 9457896	1 1243328	1105836	1329	8894164	48
13	4573566	2587	5426434	2 1864775	5142980	1 9443981	1 1245010	1107166	1330	8892834	47
14	4576153	2586	5423847	2 1852417	5146658	1 9430083	1 1246693	1108497	1331	8891503	46
15	4578739	2586	5421261	2 1840074	5150338	1 9416200	1 1248377	1109829	1332	8890171	45
16	4581325	2585	5418675	2 1827746	5154019	1 9402333	1 1250063	1111161	1332	8888839	44
17	4583910	2585	5416090	2 1815435	5157702	1 9388481	1 1251750	1112494	1333	8887506	43
18	4586496	2584	5413504	2 1803139	5161385	1 9374645	1 1253439	1113828	1334	8886172	42
19	4589080	2585	5410920	2 1790859	5165069	1 9360825	1 1255130	1115162	1334	8884838	41
20	4591665	2583	5408335	2 1778595	5168755	1 9347020	1 1256821	1116497	1335	8883503	40
21	4594248	2583	5405752	2 1766346	5172441	1 9333235	1 1258514	1117834	1337	8882166	39
22	4596832	2584	5403168	2 1754113	5176129	1 9319457	1 1260209	1119170	1336	8880830	38
23	4599415	2583	5400585	2 1741895	5179818	1 9305699	1 1261905	1120508	1338	887949-	37
24	4601998	2583	5398002	2 1729693	5183508	1 9291956	1 1263603	1121846	1338	8878154	36
25	4604580	2582	5395420	2 1717506	5187199	1 9278228	1 1265302	1123185	1339	8876815	35
26	4607162	2582	5392838	2 1705335	5190891	1 9264516	1 1267003	1124525	1340	8875475	34
27	4609744	2581	5390256	2 1693180	5194584	1 9250819	1 1268705	1125866	1341	8874134	33
28	4612325	2581	5387675	2 1681040	5198278	1 9237138	1 1270408	1127207	1341	8872793	32
29	4614906	2580	5385094	2 1668915	5201974	1 9223472	1 1272113	1128549	1342	8871451	31
30	4617486	2580	5382514	2 1656806	5205671	1 9209821	1 1273819	1129892	1343	8870108	30
31	4620066	2580	5379934	2 1644712	5209368	1 9196186	1 1275527	1131235	1343	8868765	29
32	4622646	2579	5377354	2 1632633	5213067	1 9182565	1 1277237	1132580	1345	8867420	28
33	4625225	2579	5374775	2 1620570	5216767	1 9168960	1 1278948	1133925	1345	8866075	27
34	4627804	2578	5372196	2 1608522	5220468	1 9155370	1 1280660	1135270	1345	8864730	26
35	4630382	2578	5369618	2 1596489	5224170	1 9141795	1 1282374	1136617	1347	8863383	25
36	4632960	2578	5367040	2 1584471	5227874	1 9128236	1 1284089	1137964	1347	8862036	24
37	4635538	2577	5364462	2 1572469	5231578	1 9114691	1 1285806	1139312	1348	8860688	23
38	4638115	2577	5361885	2 1560482	5235284	1 9101162	1 1287524	1140661	1349	8859339	22
39	4640692	2577	5359308	2 1548510	5238990	1 9087647	1 1289244	1142011	1350	8857989	21
40	4643269	2577	5356731	2 1536553	5242698	1 9074147	1 1290965	1143361	1350	8856639	20
41	4645845	2576	5354155	2 1524611	5246407	1 9060663	1 1292687	1144712	1351	8855288	19
42	4648420	2575	5351580	2 1512684	5250117	1 9047193	1 1294412	1146064	1352	8853936	18
43	4650996	2576	5349004	2 150077-	5253829	1 9033738	1 1296137	1147416	1352	8852584	17
44	4653571	2575	5346429	2 1488875	5257541	1 9020299	1 1297864	1148770	1354	8851230	16
45	4656145	2574	5343855	2 1476993	5261255	1 9006874	1 1299593	1150124	1354	8849876	15
46	4658719	2574	5341281	2 1465127	5264969	1 8993464	1 1301323	1151478	1354	8848522	14
47	4661293	2574	5338707	2 1453275	5268685	1 8980068	1 1303055	1152834	1356	8847166	13
48	4663866	2573	5336134	2 1441438	5272402	1 8966688	1 1304788	1154190	1356	8845810	12
49	4666439	2573	5333561	2 1429615	5276120	1 8953322	1 1306522	1155547	1357	8844453	11
50	4669012	2572	5330988	2 1417808	5279839	1 8939971	1 1308258	1156905	1358	8843095	10
51	4671584	2572	5328416	2 1406015	5283560	1 8926635	1 1309996	1158264	1359	8841736	9
52	4674156	2571	5325844	2 1394238	5287281	1 8913313	1 1311735	1159623	1359	8840377	8
53	4676727	2571	5323273	2 1382475	5291004	1 8900006	1 1313475	1160983	1360	8839017	7
54	4679298	2571	5320702	2 1370726	5294727	1 8886713	1 1315217	1162344	1361	8837656	6
55	4681869	2570	5318131	2 1358993	5298452	1 8873436	1 1316961	1163705	1361	8836295	5
56	4684439	2570	5315561	2 1347274	5302178	1 8860172	1 1318706	1165067	1362	8834933	4
57	4687009	2569	5312991	2 1335570	5305906	1 8846924	1 1320452	1166431	1364	8833569	3
58	4689578	2569	5310422	2 1323880	5309634	1 8833690	1 1322200	1167794	1363	8832206	2
59	4692147	2569	5307853	2 1312205	5313364	1 8820470	1 1323950	1169159	1365	8830841	1
60	4694716	2569	5305284	2 1300545	5317094	1 8807265	1 1325701	1170524	1365	8829476	0
	Coline	Diff	Verf.	Secant	Cotan	Tang	Cofec.	Coverf	Diff	Sine	/

27 Deg		Loc SINUS, &c										(303)
Sine	Diff	Cofc	Veried	Lang	Dih	Cotang	Coverf	Secant	D	Cofine		
09 6570468	2478	10 3429532	9 0374005	9 7071659	31 2	10 2028311	9 7372002	10 0501191	644	9 9498809	60	
19 6572946	477	10 34 7051	9 0379265	9 7074781	3121	10 29 5219	9 7369940	10 0501835	644	9 9498165	59	
29 6575423	2475	10 3424577	9 0384522	9 7077902	312	10 222098	9 7367878	10 050 479	641	9 9497521	58	
39 6577898	473	10 312 10	9 0389776	9 708102	3119	10 2918978	9 7365811	10 0503121	645	9 9496876	57	
49 6580371	471	10 31196	9 0395026	9 7084141	311	10 2915859	9 7363757	10 0503770	646	9 9496230	56	
59 658 842	2470	10 3417158	9 0400273	9 7087258	3116	10 2912742	9 7361686	10 0504115	645	9 9495585	55	
69 6585312	468	10 3411648	9 0405517	9 7090371	3114	10 2909626	9 7359621	10 0505062	646	9 9494934	54	
79 6587780	466	10 3412220	9 0410751	9 7093183	3113	10 2906512	9 7357555	10 0505708	647	9 9494 92	53	
89 6591246	2464	10 3109754	9 0415994	9 7096601	311	10 2903399	9 7355488	10 0506355	647	9 9493645	52	
99 6592710	2463	10 3407 90	9 0421228	9 7099713	3111	10 2900287	9 7353421	10 0507003	648	9 949297	51	
109 6595173	2460	10 3104627	9 0426458	9 7102324	3111	10 2897176	9 7351353	10 0507651	648	9 949 319	50	
119 6597633	2460	10 3402367	9 0431685	9 7105933	3109	10 2894067	9 7349 84	10 0508300	649	9 949170 4	49	
129 6600093	451	10 3399907	9 0436908	9 7109041	3108	10 2890959	9 7347215	10 0508949	649	9 9491051	48	
139 6602550	155	10 3397450	9 014 1 9	9 7112148	3107	10 2887852	9 7345145	10 0509598	649	9 9490401	47	
149 6605005	2154	10 3394395	9 0447345	9 7115251	3106	10 2884746	9 7343074	10 0510248	650	9 9489752	46	
159 660 159	2452	10 339 541	9 0152551	9 7118358	3104	10 288161	9 7341003	10 0510899	651	9 9489101	45	
169 6609911	2450	10 3390089	9 0457769	9 7121461	3103	10 2878539	9 7338931	10 0511550	651	9 948845	44	
179 6612361	2449	10 3387639	9 046 971	9 7124562	3101	10 2875438	9 7336858	10 0512201	651	9 9487799	43	
189 6611810	447	10 3385190	9 0468180	9 71 7662	3100	10 2872336	9 7334785	10 0512853	652	9 9487147	42	
199 6617257	2445	0 3382743	9 0473380	9 7130 61	3099	10 2869239	9 7332711	10 0513505	65	9 9486495	41	
209 661970	443	10 3380298	9 0178578	9 7133859	3098	10 2866111	9 7330636	10 0514158	653	9 9485842	40	
1 6622145	2441	10 3377855	9 0483771	9 7136956	3097	10 2863044	9 7328561	10 0514811	653	9 9485189	39	
11 66 4586	2440	10 3375414	9 0488962	9 7140051	3095	10 2859949	9 7326484	10 0515465	654	9 9484535	38	
12 6627026	2438	10 3372974	9 0494119	9 7143145	3094	10 2856855	9 7324408	10 0516119	654	9 9483881	37	
13 6629464	136	10 3370536	9 0199333	9 7146237	3092	10 2853763	9 7322331	10 0516773	654	9 9483 7	36	
149 6631900	2435	10 3368100	9 0504514	9 7149329	3090	10 2850671	9 7320252	10 0517428	655	9 9482572	35	
159 6631335	2433	10 3365665	9 0509691	9 7152419	3089	10 2847581	9 7318174	10 0518081	656	9 9481916	34	
169 6636768	2431	10 3363232	9 0514865	9 7155508	3087	10 2844492	9 7316094	10 0518710	656	9 9481260	33	
179 6639199	2431	10 3360801	9 0520036	9 7158595	3087	10 811405	9 7314011	10 0519396	656	9 9480604	32	
189 6641628	128	10 3358372	9 0525204	9 7161682	3087	10 2838318	9 7311933	10 0520053	657	9 9479947	31	
199 6644056	426	10 3355944	9 0530368	9 7164767	3085	10 2835233	9 7309852	10 0520711	658	9 9479289	30	
1 6646182	2424	10 3353518	9 0535521	9 716 851	3084	10 2832149	9 7307769	10 0521369	658	9 9478631	29	
11 6648906	2423	10 3351091	9 0540687	9 7170933	308	10 2829067	9 7305686	10 0522027	658	9 9477973	28	
12 6651329	2420	10 3348671	9 0545842	9 7174014	3081	10 2825986	9 7303603	10 0522686	659	9 9477314	27	
13 6653741	2419	10 3346251	9 0550993	9 7177091	3080	10 28 2906	9 7301519	10 0523345	659	9 9476655	26	
14 6656168	2419	10 3343832	9 0556141	9 7180173	3079	10 2819827	9 7299431	10 0524005	660	9 9475995	25	
15 6658586	2418	10 3341414	9 0561286	9 7183251	3078	10 2816749	9 7297348	10 0524665	661	9 9475335	24	
16 6661001	2415	10 3338999	9 0566421	9 71863 7	3076	10 2813673	9 7295262	10 05 5326	661	9 9474674	23	
17 6663115	2414	10 3336585	9 0571566	9 7189402	3075	10 2810598	9 7293175	10 0525987	661	9 9474013	22	
18 6665828	2413	10 3334172	9 0576701	9 7192476	3074	10 28075 4	9 7291087	10 0526648	661	9 9473352	21	
19 6668238	2410	10 3331762	9 0581833	9 7195549	3073	10 2804451	9 7288999	10 0527311	663	9 9472689	20	
1 66 0617	2409	10 33 9353	9 0586962	9 7198620	3071	10 2801380	9 7286910	10 0527973	662	9 9472027	19	
12 6673051	2407	10 3326916	9 059208	9 7201690	3070	10 2798310	9 7284820	10 0528636	663	9 9471364	18	
13 6675159	2105	10 3324541	9 0597210	9 7204759	3069	10 795 41	9 728 229	10 0529300	664	9 9470700	17	
14 6677863	2101	10 33 2137	9 060 321	9 7207827	3068	10 2792173	9 7280638	10 0529961	664	9 9470036	16	
15 6680265	2402	10 3319735	9 0607445	9 7210893	3066	10 789107	9 7278546	10 0530628	664	9 9469372	15	
16 6682605	2400	10 3317335	9 0612558	9 7213958	3065	10 2786042	9 7276451	10 0531293	665	9 9468707	14	
17 6685061	2399	10 3314936	9 061766	9 7217022	3064	10 2782978	9 7274361	10 0531958	665	9 9468041	13	
18 6687461	2397	10 3312539	9 0622771	9 7220085	3063	10 2779915	9 7272267	10 053 621	666	9 9467376	12	
19 6689856	2395	10 3310141	9 0627877	9 7223147	3062	10 2776853	9 7270172	10 0533290	666	9 9466711	11	
1 669225	2394	10 3307750	9 0632977	9 7226207	3060	10 2773793	9 7268077	10 0533957	667	9 9466043	10	
12 6694642	2392	10 3305358	9 0638071	9 7229266	3059	10 2770734	9 7265981	10 0534621	667	9 9465376	9	
13 6697032	2390	10 3302968	9 0643168	9 7232324	3058	10 2767676	9 7263885	10 0535292	668	9 9464708	8	
14 6699421	2388	10 3300580	9 0648258	9 7235381	3057	10 2764619	9 7261787	10 0535960	668	9 9464041	7	
15 6701807	387	10 3298193	9 0653346	9 7238437	3055	10 2761564	9 7259689	10 0536629	669	9 9463371	6	
16 6704192	2385	10 3295808	9 0658430	9 7241490	3054	10 2758510	9 7257591	10 0537298	669	9 946270	5	
17 6706576	2384	10 3293424	9 0663511	9 7244543	3053	10 2755455	9 7255491	10 0537968	670	9 9462032	4	
18 6708958	2382	10 3291042	9 0668589	9 7247595	3052	10 2752405	9 7253391	10 0538638	67	9 9461362	3	
19 6711338	380	10 3288662	9 0673663	9 7250647	3051	10 2749354	9 7251290	10 0539308	670	9 9460692	2	
1 6713716	2378	10 3286284	9 0678735	9 7253695	3049	10 2746305	9 7249189	10 0539979	671	9 9460021	1	
12 6716093	2377	10 3283907	9 0683803	9 7256741	3048	10 2743251	9 7247087	10 0540641	672	9 9459351	0	
Cofine	Diff	Secant	Coverf	Cotang	Diff	Lang	Veried	Cofc	D	Sine		

18 Deg		NATURAL SINES, &c.								Tab. 10	
	Sine	Diff	Coverf	Colec	Tang	Cotang	Secant	Verf	Diff	Cofine	
0	4694716	2568	5305284	2 1300545	5317094	1 8807265	1 1325701	1170524	1366	8829476	60
1	4697284	2568	5302716	2 1288899	5320826	1 8794074	1 1327453	1171890	1367	8828110	59
2	4699852	2567	5300148	2 1277267	5324559	1 8780898	1 1329207	1173257	1367	8826743	58
3	4702419	2567	5297581	2 1265651	5328293	1 8767736	1 1330962	1174624	1369	8825376	57
4	4704986	2567	5295014	2 1254048	5332029	1 8754588	1 1332719	1175993	1369	8824007	56
5	4707553	2566	5292447	2 1242460	5335765	1 8741455	1 1334478	1177362	1369	8822638	55
6	4710119	2566	5289881	2 1230887	5339503	1 8728336	1 1336238	1178731	1371	8821269	54
7	4712685	2565	5287315	2 1219328	5343242	1 8715231	1 1337999	1180102	1371	8819898	53
8	4715250	2565	5284750	2 1207783	5346981	1 8702141	1 1339762	1181473	1372	8818526	52
9	4717815	2565	5282185	2 1196253	5350723	1 8689065	1 1341527	1182845	1373	8817155	51
10	4720380	2564	5279620	2 1184737	5354465	1 8676003	1 1343293	1184218	1373	8815782	50
11	4722944	2564	5277056	2 1173235	5358208	1 8662955	1 1345060	1185591	1374	8814409	49
12	4725508	2563	5274492	2 1161748	5361953	1 8649921	1 1346829	1186965	1375	8813035	48
13	4728071	2563	5271929	2 1150274	5365699	1 8636902	1 1348600	1188340	1376	8811660	47
14	4730634	2563	5269366	2 1138815	5369446	1 8623896	1 135037~	1189716	1377	8810284	46
15	4733197	2562	5266803	2 1127371	5373194	1 8610905	1 1352146	1191093	1377	8808907	45
16	4735759	2562	5264241	2 1115940	5376943	1 85979~8	1 1353921	1192470	1378	8807530	44
17	4738321	2561	5261679	2 1104523	5380694	1 8584965	1 1355697	1193848	1378	8806152	43
18	4740882	2561	5259118	2 1093121	5384445	1 8572015	1 1357476	1195226	1380	8804774	42
19	4743443	2561	5256557	2 1081733	5388198	1 8559080	1 1359255	1196606	1380	8803394	41
20	4746004	2560	5253996	2 1070359	5391952	1 8546159	1 1361036	1197986	1381	8802014	40
21	4748564	2560	5251436	2 1058998	5395707	1 8533252	1 1362819	1199367	1382	8800633	39
22	4751124	2559	5248876	2 1047652	5399464	1 8520358	1 1364603	1200749	1382	8799251	38
23	4753683	2559	5246317	2 1036320	5403221	1 8507479	1 1366389	1202131	1383	8797869	37
24	4756242	2559	5243758	2 1025002	5406980	1 8494613	1 1368176	1203514	1384	8796486	36
25	4758801	2558	5241199	2 1013698	5410740	1 8481761	1 1369965	1204898	1385	8795102	35
26	4761359	2558	5238641	2 1002408	5414501	1 8468923	1 1371755	1206283	1385	8793717	34
27	4763917	2558	5236083	2 0991131	5418263	1 8456099	1 1373547	1207668	1386	8792332	33
28	4766474	2557	5233526	2 0979869	5422027	1 8443289	1 1375341	1209054	1387	8790946	32
29	4769031	2557	5230969	2 0968620	5425791	1 8430492	1 1377135	1210441	1388	8789559	31
30	4771588	2556	5228412	2 0957385	5429557	1 8417709	1 1378932	1211829	1388	8788171	30
31	4774144	2556	5225856	2 0946164	5433324	1 8404940	1 1380730	1213217	1389	8786783	29
32	4776700	2555	5223300	2 0934957	5437092	1 8392184	1 1382529	1214606	1390	8785394	28
33	4779255	2555	5220745	2 0923764	5440862	1 8379442	1 1384330	1215996	1391	8784004	27
34	4781810	2554	5218190	2 0912584	5444632	1 8366713	1 1386133	1217387	1391	8782613	26
35	4784364	2555	5215636	2 0901418	5448404	1 8353999	1 1387937	1218778	1392	8781222	25
36	4786919	2553	5213081	2 0890265	5452177	1 8341297	1 1389742	1220170	1393	8779830	24
37	4789472	2554	5210528	2 0879127	5455951	1 8328610	1 1391550	1221563	1394	8778437	23
38	4792026	2553	5207974	2 0868002	5459727	1 8315936	1 1393358	1222957	1394	8777043	22
39	4794579	2552	5205421	2 0856890	5463503	1 8303275	1 1395169	1224351	1395	8775649	21
40	4797131	2552	5202869	2 0845792	5467281	1 8290628	1 1396980	1225746	1396	8774254	20
41	4799683	2552	5200317	2 0834708	5471060	1 8277994	1 1398794	1227142	1396	8772858	19
42	4802235	2551	5197765	2 0823637	5474840	1 8265374	1 1400608	1228538	1398	8771462	18
43	4804786	2551	5195214	2 0812580	5478621	1 8252767	1 1402425	1229936	1398	8770064	17
44	4807337	2551	5192663	2 0801536	5482404	1 8240173	1 1404243	1231334	1398	8768666	16
45	4809888	2550	5190112	2 0790506	5486188	1 8227593	1 1406062	1232732	1400	8767268	15
46	4812438	2549	5187562	2 0779489	5489973	1 8215026	1 1407883	1234132	1400	8765868	14
47	4814987	2550	5185013	2 0768486	5493759	1 8202473	1 1409706	1235532	1401	8764468	13
48	4817537	2549	5182463	2 0757496	5497547	1 8189932	1 1411530	1236933	1402	8763067	12
49	4820086	2548	5179914	2 0746519	5501335	1 8177405	1 1413356	1238335	1402	8761665	11
50	4822634	2548	5177366	2 0735556	5505125	1 8164892	1 1415183	1239737	1404	8760263	10
51	4825182	2548	5174818	2 0724606	5508916	1 8152391	1 1417012	1241141	1404	8758851	9
52	4827730	2547	5172270	2 0713670	5512708	1 8139904	1 1418842	1242545	1404	8757455	8
53	4830277	2547	5169723	2 0702746	5516502	1 8127430	1 1420674	1243949	1406	8756051	7
54	4832824	2546	5167176	2 0691836	5520297	1 8114969	1 1422507	1245355	1406	8754645	6
55	4835370	2546	5164630	2 0680940	5524093	1 8102521	1 1424342	1246761	1407	8753239	5
56	4837916	2546	5162084	2 0670056	5527890	1 8090086	1 1426179	1248168	1407	8751832	4
57	4840462	2545	5159538	2 0659186	5531688	1 8077664	1 1428017	1249575	1409	8750425	3
58	4843007	2545	5156993	2 0648328	5535488	1 8065250	1 1429857	1250984	1409	8749016	2
59	4845554	2545	5154448	2 0637484	5539288	1 8052860	1 1431698	1252393	1410	8747607	1
60	4848096	2544	5151904	2 0626653	5543091	1 8040478	1 1433541	1253803		8746197	0
	Cofine	Diff	Verf.	Secant	Cotan	Tang.	Colec.	Coverf	Diff	Sine	

28 Deg		Log Sines, &c.										(305)	
	Sine	Diff	Cofec	Verfed	Tang	Diff	Cotang	Coverf	Secant	D	Cofine		
0	6716033	2375	103283907	90683803	9756744	3047	102743256	97247587	100540651	672	99459349	60	
1	6718468	2373	103281532	90688869	97259791	3046	102740209	97244984	100541323	672	99458677	59	
2	6720841	2372	103279159	90693931	9726837	3046	102737163	97242880	100541995	672	99458005	58	
3	6723213	2372	103276787	90698990	97265881	3044	102734119	97240776	100542668	673	99457332	57	
4	6725583	2370	103274417	90704046	9726895	3041	102731075	97238671	100543341	673	99456659	56	
5	6727952	369	103272048	90709099	97271967	304	102728033	97236565	100544015	674	99455985	55	
6	6730319	365	103269681	90714148	97275008	3041	102724992	97234459	100544690	675	99455310	54	
7	6732684	365	103267316	90719195	97278048	3040	102721952	9723235	100545364	674	99454636	53	
8	6735047	236	103264953	90724238	97281087	3039	102718913	97230244	100546040	676	99453960	52	
9	6737409	236	103262591	90729279	97284124	3037	102715876	97228136	100546715	675	99453285	51	
10	6739769	2359	103260231	90734316	97287161	3037	102712839	97226027	100547391	676	99452609	50	
11	6742128	2357	103257872	90739350	97290196	3035	102709804	97223917	100548068	677	99451933	49	
12	6744485	355	103255515	90744381	97293230	3034	102706770	97221809	100548745	678	99451255	48	
13	6746840	354	103253160	90749409	97296263	3032	102703737	97219695	100549423	678	99450577	47	
14	6749194	35	103250806	90754434	97299295	3030	102700705	97217584	100550101	679	99449899	46	
15	6751546	2350	103248454	90759455	9730235	3029	102697675	97215471	100550780	679	99449220	45	
16	6753896	2349	103246104	90764474	97305354	3029	102694646	97213358	100551459	679	99448541	44	
17	6756245	2347	103243755	90769490	97308383	3027	102691617	97211244	100552138	680	99447862	43	
18	6758592	2345	103241408	90774502	97311410	3026	102688590	97209129	100552818	681	99447183	42	
19	676093	2344	103239063	90779511	97314436	3024	102685564	97207014	100553499	680	99446501	41	
20	6763281	2342	103236719	90784518	97317460	3024	102682540	97204898	100554179	682	99445821	40	
21	6765623	2340	103234377	90789521	97320483	3022	102679516	97202781	100554861	682	99445139	39	
22	6767963	2339	103232037	90794521	97323506	3022	102676494	97200663	100555543	682	99444457	38	
23	6770302	2338	103229698	90799518	9732657	3021	102673473	97198545	100556225	683	99443775	37	
24	6772640	335	103227360	90804512	97329541	3019	102670453	9719646	100556908	683	99443092	36	
25	6774975	334	103225025	90809503	97332566	3018	102667434	97194301	100557591	684	99442409	35	
26	6777309	2333	103222691	90814491	97335584	3017	102664416	97192186	100558275	684	99441725	34	
27	6779642	330	103220358	90819476	97338601	3015	102661399	97190066	100558959	685	99441041	33	
28	6781972	329	103218028	90824458	97341616	3015	102658384	97187944	100559644	685	99440356	32	
29	6784301	2328	103215699	90829437	97344631	3013	102655369	97185811	100560329	686	99439671	31	
30	6786669	2326	103213371	90834413	97347644	3012	102652356	97183698	100561015	686	99438985	30	
31	6788955	324	103211045	90839386	97350656	3011	102649344	97181575	100561701	687	99438299	29	
32	6791277	323	103208721	90844356	97353667	3010	102646333	97179450	100562388	687	99437612	28	
33	6793602	321	103206398	90849322	97356677	3008	102643323	97177325	100563075	687	99436925	27	
34	6795923	320	103204077	90854286	97359685	3008	102640315	97175199	100563762	687	99436238	26	
35	6798243	317	103201757	90859247	97362693	3006	102637307	97173072	100564451	688	99435551	25	
36	6800560	317	103199440	90864204	97365699	3006	102634301	97170945	100565139	688	99434861	24	
37	6802877	2314	103197123	90869159	97368705	3004	102631292	97168817	100565828	689	99434172	23	
38	6805191	313	103194809	90874111	97371709	3003	102628291	97166688	100566518	690	99433482	22	
39	6807504	231	103192496	90879059	97374712	300	102625288	97164559	100567204	690	99432792	21	
40	6809816	310	103190184	90884005	97377714	300	102622286	97162429	100567898	691	99432102	20	
41	6812126	308	103187874	90888948	97380715	3001	102619285	97160298	100568589	691	99431411	19	
42	6814434	307	103185566	90893887	97383714	300	102616286	97158166	100569280	692	99430720	18	
43	6816741	305	103183259	90898824	97386713	300	102613287	97156034	100569972	693	99430028	17	
44	6819046	303	103180954	90903758	97389710	2997	102610290	97153901	100570665	693	99429335	16	
45	6821349	2302	103178651	90908688	97392707	2995	102607293	97151768	100571357	694	99428643	15	
46	6823651	2301	103176349	90913616	97395702	2994	102604298	97149633	100572051	694	99427949	14	
47	6825952	96	103174048	90918541	97398696	2993	102601304	97147498	100572745	694	99427255	13	
48	6828250	2298	103171750	9092346	97401689	2992	102598311	97145362	100573439	695	99426561	12	
49	6830548	295	103169452	90928381	97404681	2991	102595319	9714326	100574134	695	99425866	11	
50	6832843	2294	103167157	90933297	97407671	2990	102592328	97141089	100574829	695	99425171	10	
51	6835137	2293	103164863	90938210	97410662	2988	102589338	97138951	100575524	696	99424476	9	
52	6837430	90	103162570	90943120	97413650	2988	102586350	97136812	100576221	696	99423779	8	
53	6839720	2287	103160280	90948027	97416638	2986	102583362	97134673	100576917	697	99423083	7	
54	6842010	2287	103157990	90952931	97419624	2985	102580376	97132533	100577614	698	99422386	6	
55	6844297	2286	103155703	90957833	97422609	2985	102577391	97130392	100578312	698	99421688	5	
56	6846583	2285	103153417	90962730	97425594	2983	102574406	97128250	100579010	699	99420990	4	
57	6848868	2283	103151132	9096765	97428577	2982	102571423	97126108	100579709	699	99420291	3	
58	6851151	2281	103148849	90972517	97431559	2980	102568441	97123965	100580408	699	99419592	2	
59	6853432	2280	103146568	90977406	97434540	2980	102565460	97121822	100581107	700	99418893	1	
60	6855712		103144288	90982293	97437520		102562480	97119677	100581807		99418193	0	
Cofine	Diff	Secant	Coverf	Cotang	Diff	Tang	Verfed	Cofec	D	Sine			

29 Deg		NATURAL SINES, &c.							Tab. 10	
	Sine	Diff	Coverd	Cofec	Tang.	Cotang	Secant	Verf.	Diff	Cofine
0	4848096	2544	5151904	2 0626653	5543091	1 8040478	1 1433541	1253803	1411	8746197
1	4850640	2544	5149360	2 0615836	5546894	1 8028108	1 1435385	1255214	1411	8744786
2	4853184	2544	5146816	2 0605031	5550698	1 8015751	1 1437231	1256625	1412	8743375
3	4855727	2543	5144273	2 0594239	5554504	1 8003408	1 1439078	1258037	1413	8741963
4	4858270	2543	5141730	2 0583460	5558311	1 7991077	1 1440927	1259450	1413	8740550
5	4860812	2542	5139188	2 0572695	5562119	1 7978759	1 1442778	1260863	1415	8739137
6	4863354	2542	5136646	2 0561942	5565929	1 7966454	1 1444630	1262278	1415	8737722
7	4865895	2541	5134105	2 0551203	5569739	1 7954162	1 1446484	1263693	1415	8736307
8	4868436	2541	5131564	2 0540476	5573551	1 7941883	1 1448339	1265109	1416	8734891
9	4870977	2541	5129023	2 0529762	5577364	1 7929616	1 1450196	1266525	1416	8733475
10	4873517	2540	5126483	2 0519061	5581179	1 7917362	1 1452055	1267942	1417	8732058
11	4876057	2540	5123943	2 0508373	5584994	1 7905121	1 1453915	1269360	1418	8730640
12	4878597	2540	5121403	2 0497698	5588811	1 7892893	1 1455776	1270779	1419	8729221
13	4881136	2539	5118864	2 0487036	5592629	1 7880678	1 1457639	1272199	1420	8727801
14	4883674	2538	5116326	2 0476386	5596449	1 7868475	1 1459504	1273619	1420	8726381
15	4886212	2538	5113788	2 0465750	5600269	1 7856285	1 1461371	1275040	1421	8724960
16	4888750	2538	5111250	2 0455126	5604091	1 7844107	1 1463238	1276462	1422	8723538
17	4891288	2537	5108712	2 0444515	5607914	1 7831943	1 1465108	1277884	1422	8722116
18	4893825	2536	5106175	2 0433916	5611738	1 7819790	1 1466979	1279307	1423	8720693
19	4896361	2536	5103639	2 0423330	5615564	1 7807651	1 1468852	1280731	1424	8719269
20	4898897	2536	5101103	2 0412757	5619391	1 7795524	1 1470726	1282156	1425	8717844
21	4901433	2535	5098567	2 0402197	5623219	1 7783409	1 1472601	1283581	1425	8716419
22	4903968	2535	5096031	2 0391649	5627048	1 7771307	1 1474479	1285007	1426	8714993
23	4906503	2535	5093495	2 0381114	5630879	1 7759218	1 1476358	1286434	1427	8713566
24	4909038	2534	5090962	2 0370591	5634710	1 7747141	1 1478239	1287860	1428	8712138
25	4911572	2533	5088428	2 0360082	5638543	1 7735076	1 1480121	1289290	1428	8710710
26	4914105	2533	5085895	2 0349585	5642378	1 7723024	1 1482005	1290719	1429	8709281
27	4916638	2533	5083362	2 0339100	5646213	1 7710985	1 1483890	1292149	1430	8707851
28	4919171	2533	5080829	2 0328628	5650050	1 7698958	1 1485777	1293580	1431	8706420
29	4921704	2532	5078296	2 0318168	5653888	1 7686943	1 1487665	1295011	1431	8704989
30	4924236	2531	5075764	2 0307720	5657728	1 7674940	1 1489555	1296443	1432	8703557
31	4926767	2531	5073233	2 0297286	5661568	1 7662950	1 1491447	1297876	1433	8702124
32	4929298	2531	5070701	2 0286863	5665410	1 7650972	1 1493340	1299309	1433	8700691
33	4931829	2530	5068171	2 0276453	5669254	1 7639007	1 1495235	1300741	1435	8699256
34	4934359	2530	5065641	2 0266056	5673098	1 7627053	1 1497131	1302179	1435	8697821
35	4936889	2530	5063111	2 0255670	5676944	1 7615111	1 1499030	1303611	1435	8696386
36	4939419	2529	5060581	2 0245297	5680791	1 7603183	1 1500930	1305051	1437	8694949
37	4941948	2528	505805	2 0234937	5684639	1 7591267	1 1502831	1306488	1437	8693512
38	4944476	2528	5055524	2 0224589	5688488	1 7579362	1 1504734	1307926	1438	8692074
39	4947005	2527	5052995	2 0214253	5692339	1 7567470	1 1506638	1309364	1438	8690636
40	4949532	2527	5050468	2 0203929	5696191	1 7555590	1 1508544	1310804	1440	8689196
41	4952060	2526	5047940	2 0193618	5700045	1 7543722	1 1510452	1312244	1440	8687750
42	4954587	2526	5045413	2 0183318	5703899	1 7531866	1 1512361	1313685	1441	8686315
43	4957113	2526	5042887	2 0173031	5707755	1 7520023	1 1514272	1315126	1441	8684871
44	4959639	2526	5040361	2 0162756	5711611	1 7508191	1 1516185	1316569	1443	8683431
45	4962165	2525	5037835	2 0152494	5715471	1 7496371	1 1518099	1318012	1443	8681988
46	4964690	2525	5035310	2 0142243	5719331	1 7484564	1 1520015	1319456	1444	8680544
47	4967215	2525	5032785	2 0132005	5723192	1 7472768	1 1521932	1320900	1444	8679100
48	4969740	2524	5030260	2 0121779	5727054	1 7460984	1 1523851	1322345	1445	8677655
49	4972264	2523	5027736	2 0111564	5730918	1 7449213	1 1525772	1323791	1446	8676209
50	4974787	2523	5025213	2 0101362	5734783	1 7437453	1 1527694	1325238	1447	8674762
51	4977310	2523	5022690	2 0091172	5738649	1 7425705	1 1529618	1326686	1448	8673314
52	4979833	2522	5020167	2 0080994	5742516	1 7413969	1 1531543	1328134	1448	8671866
53	4982355	2522	5017645	2 0070828	5746385	1 7402245	1 1533470	1329583	1449	8670417
54	4984877	2522	5015123	2 0060674	5750255	1 7390535	1 1535399	1331033	1450	8668967
55	4987399	2521	5012601	2 0050532	5754126	1 7378833	1 1537329	1332483	1450	8667517
56	4989920	2521	5010080	2 0040402	5757999	1 7367144	1 1539261	1333934	1451	8666066
57	4992441	2520	5007559	2 0030283	5761873	1 7355468	1 1541195	1335386	1452	8664614
58	4994961	2520	5005039	2 0020177	5765748	1 7343803	1 1543130	1336839	1453	8663161
59	4997481	2519	5002519	2 0010083	5769625	1 7332149	1 1545067	1338292	1453	8661708
60	5000000	2519	5000000	2 0000000	5773505	1 7320508	1 1547005	1339746	1454	8660254
	Cofine	Diff	Verf	Secant	Cotan.	Tang	Cofec	Coverd	Diff	Sine

29 Deg			LOG SINES, &c						(307)		
	Sine	Diff	Cofec	Verfed	Tang	Diff	Cotang	Coverf	Secant	D	Cofine
0	6855712	279	103144288	90982293	97437520		10562480	1119677	10081807	701	99418193
1	6857991	276	10314009	90987176	97440499	979	102559501	97117532	10058508	701	99417492
2	686067	275	103139733	90992057	97443476	2977	10255654	97115387	100583209	701	99416791
3	6862542	274	103137458	90996934	97446453	2977	10553511	9711340	100583910	701	9941609
4	6864816	274	103135161	91001809	9744948	2975	1055057	97111093	100584612	702	9941538
5	6866088	272	103132912	91006681	97452403	2975	102547597	97108945	100585315	703	99414685
6	6869359	271	103130641	91011519	97455376	2973	102541624	97106797	100586018	703	99413982
7	6871628	269	103128372	91016415	97458349	973	102541651	97104647	100586721	703	99413279
8	6873895	267	103126105	9102128	97461320	2971	102538680	97102497	100587425	704	99412575
9	6876161	266	103123839	91026138	97464290	970	102535710	97100346	100588129	704	99411871
10	687845	261	103121575	91030995	9746759	2969	10537741	97098195	100588834	705	99411166
11	6880688	63	103119312	91035850	97470227	968	102529773	97096043	100589539	705	99410461
12	6882949	261	103117051	91040701	97473194	2967	10526806	97093890	100590245	706	99409755
13	688509	258	103114791	91045550	97476160	2966	102523840	97091736	100590952	707	99409048
14	6887467	56	103112533	91050395	97479125	2965	102520875	9708958	100591658	708	99408341
15	6889723	255	103110277	91055238	97482089	2964	102517911	97087427	100592366	708	99407634
16	6891978	254	103108029	91060078	97485052	2963	102514948	97085271	100593073	708	99406927
17	6894232	252	103105768	91064915	97488013	2961	102511987	97083115	100593781	709	99406219
18	6896484	250	103103516	91069749	97490974	2960	102509026	97080957	100594490	709	99405510
19	6898734	249	103101266	91074580	97493934	2958	102506066	97078799	100595199	710	99404801
20	6900983	248	103099017	91079408	97496892	2958	10503108	97076641	100595909	710	99404091
21	6903231	245	103096769	91084234	97499850	958	102500150	97074481	100596619	711	99403381
22	6905476	245	103094524	91089056	97502806	2956	102497194	97072321	100597330	711	99402670
23	6907721	243	103092279	91093876	97505762	956	102494238	97070160	100598041	711	99401959
24	6909964	241	103090036	91098693	97508716	2954	10491284	97067999	10059875	712	99401248
25	6912205	240	103087795	91103507	97511669	953	102488331	97065837	100599465	712	99400535
26	6914445	238	103085555	91108318	97514622	2953	102485378	97063674	100600177	712	99399823
27	6916683	236	103083317	9111316	97517573	2951	102482427	97061510	100600890	713	99399110
28	6918919	236	103081081	91117932	97520523	2950	102479477	97059346	100601604	714	99398396
29	6921155	234	103078845	91122735	97523472	949	1047658	97057180	100602318	714	99397683
30	6923386	223	10307661	91127534	97526420	948	102473580	97055015	10060303	715	99396968
31	692560	231	103074380	91132331	97529368	2948	102470632	97052848	100603747	716	99396253
32	6927851	229	103072149	9113716	97532314	2946	10467686	97050681	100604463	716	99395537
33	6930080	228	103069920	9114191	97535259	2945	1046441	97048513	100605179	716	99394821
34	6932308	226	103067692	91146605	97538203	2944	102461797	97046344	100605895	717	99394105
35	6934534	224	103065466	91151491	97541146	2943	10458854	97044174	10060661	717	99393388
36	6936758	223	10306324	91156274	97544088	2941	10245591	97042004	100607329	717	99392671
37	6938981	222	103061019	91161054	97547029	2940	102452971	97039833	100608047	718	99391955
38	6941203	220	103058797	91165831	97549969	2940	102450031	97037661	100608766	719	99391234
39	6943431	219	10305657	91170606	97552908	939	102447092	97035489	100609485	719	99390515
40	6945642	17	103054358	91175377	97555846	938	10444154	97033316	100610204	720	99389796
41	6947859	215	103052141	91180146	97558783	2937	1044117	9703114	100610924	720	99389076
42	6950074	211	10304996	9118491	97561718	2935	10243828	97028967	100611644	721	99388356
43	6952288	213	10304771	9118965	97564653	2934	10435347	9702679	10061365	721	99387635
44	6954501	211	103045499	91194436	97567587	2933	102432413	97024616	100613086	722	99386914
45	6956712	210	103043283	91199213	97570520	2933	102429480	97022439	100613808	722	9938619
46	695892	208	10304108	91203948	9757345	93	102426548	9702026	100614530	723	99385470
47	6961130	206	103038870	91208700	97576383	2931	10123617	97018084	100615253	723	99384747
48	6963336	205	103036664	91213449	97579313	930	10420687	97015905	100615976	724	99384024
49	6965541	204	103034459	91218196	97582242	2929	102417758	97013725	100616700	724	99383300
50	6967745	220	103032255	91222939	97585170	2928	102414830	97011545	100617424	725	99382576
51	6969947	201	103030053	91227680	97588096	2926	102411904	97009363	100618149	725	99381851
52	6972148	199	103027852	91232419	97591022	2926	102408978	97007182	100618874	726	99381126
53	6974347	2198	103025653	91237151	97593947	2925	102406053	97004999	100619600	726	99380400
54	6976545	196	103023455	91241887	97596871	2924	102403129	97002816	100620326	727	99379674
55	6978741	2195	103021259	91246617	97599794	2923	102400206	97000631	100621053	727	99378947
56	6980936	2193	103019064	91251344	97602716	2921	102397284	96998447	100621780	728	99378220
57	6983129	2192	103016871	91256068	97605637	2920	102394363	96996271	100622508	728	99377492
58	6985321	2190	103014679	91260790	97608557	2919	102391443	96994095	100623236	729	99376764
59	6987511	2189	103012489	91265508	97611476	2918	102388524	96991888	100623965	729	99376035
60	6989700		103010300	91270225	97614394		102385606	96989700	100624694	730	99375306
Cofine	Diff	Secant	Coverf	Cotang	Diff	Tang	Verfed	Cofec	D	Sine	

30 Deg		NATURAL SINES, &c.								Tab. 10	
	Sine	Diff	Coverf	Cosec	Tang	Cotang	Secant	Verf.	Diff	Cofine	
0	5000000	2519	5000000	2 0000000	5773503	1 7320508	1 1547005	1339746	1455	8660254	60
1	5002519	2518	4997481	1 9989929	5777382	1 7308878	1 1548945	1341201	1455	8658799	59
2	5005037	2519	4994963	1 9979870	5781262	1 7297260	1 1550887	1342656	1457	8657344	58
3	5007556	2517	4992444	1 9969823	5785144	1 7285654	1 1552830	1344113	1457	8655887	57
4	5010073	2518	4989927	1 9959788	5789027	1 7274060	1 1554775	1345570	1457	8654430	56
5	5012591	2516	4987409	1 9949764	5792912	1 7262477	1 1556722	1347027	1459	8652973	55
6	5015107	2517	4984893	1 9939753	5796797	1 7250905	1 1558670	1348486	1459	8651514	54
7	5017624	2516	4982376	1 9929752	5800684	1 7239346	1 1560620	1349945	1460	8650055	53
8	5020140	2515	4979860	1 9919764	5804573	1 7227797	1 1562572	1351405	1461	8648595	52
9	5022655	2515	4977345	1 9909787	5808462	1 7216261	1 1564525	1352866	1461	8647134	51
10	5025170	2515	4974830	1 9899822	5812353	1 7204736	1 1566480	1354327	1462	8645673	50
11	5027685	2515	4972315	1 9889869	5816245	1 7193222	1 1568436	1355789	1462	8644211	49
12	5030199	2514	4969801	1 9879927	5820139	1 7181720	1 1570394	1357252	1464	8642748	48
13	5032713	2514	4967287	1 9869997	5824034	1 7170230	1 1572354	1358716	1464	8641284	47
14	5035227	2513	4964773	1 9860080	5827930	1 7158751	1 1574315	1360180	1465	8639820	46
15	5037740	2512	4962260	1 9850172	5831828	1 7147283	1 1576278	1361645	1466	8638355	45
16	5040252	2513	4959748	1 9840276	5835726	1 7135827	1 1578243	1363111	1466	8636889	44
17	5042765	2511	4957235	1 9830393	5839627	1 7124382	1 1580209	1364577	1467	8635423	43
18	5045276	2512	4954724	1 9820520	5843528	1 7112949	1 1582177	1366044	1468	8633956	42
19	5047788	2510	4952212	1 9810659	5847431	1 7101527	1 1584146	1367512	1469	8632488	41
20	5050298	2511	4949700	1 9800810	5851335	1 7090116	1 1586118	1368981	1470	8631019	40
21	5052809	2510	4947191	1 9790972	5855241	1 7078717	1 1588091	1370451	1470	8629549	39
22	5055319	2509	4944681	1 9781146	5859148	1 7067329	1 1590065	1371921	1471	8628079	38
23	5057828	2510	4942172	1 9771331	5863056	1 7055953	1 1592041	1373392	1471	8626608	37
24	5060338	2508	4939660	1 9761527	5866965	1 7044587	1 1594019	1374863	1473	8625137	36
25	5062846	2509	4937151	1 9751735	5870876	1 7033233	1 1595999	1376336	1473	8623664	35
26	5065355	2508	4934645	1 9741954	5874788	1 7021890	1 1597980	1377809	1474	8622191	34
27	5067863	2507	4932137	1 9732185	5878702	1 7010559	1 1599963	1379283	1474	8620717	33
28	5070370	2507	4929630	1 9722427	5882616	1 7009238	1 1601947	1380757	1475	8619243	32
29	5072877	2507	4927123	1 9712680	5886533	1 7007929	1 1603933	1382232	1476	8617768	31
30	5075384	2506	4924616	1 9702944	5890450	1 7006631	1 1605921	1383708	1477	8616292	30
31	5077890	2506	4922110	1 9693220	5894369	1 7005344	1 1607911	1385185	1478	8614815	29
32	5080396	2505	4919604	1 9683507	5898289	1 7004069	1 1609900	1386663	1478	8613337	28
33	5082901	2505	4917099	1 9673805	5902211	1 7002801	1 1611894	1388141	1479	8611859	27
34	5085406	2504	4914594	1 9664114	5906134	1 7001550	1 1613889	1389620	1479	8610380	26
35	5087910	2504	4912090	1 9654435	5910058	1 7000308	1 1615885	1391099	1481	8608901	25
36	5090414	2504	4909586	1 9644767	5913984	1 6999077	1 1617883	1392580	1481	8607420	24
37	5092918	2503	4907082	1 9635110	5917910	1 6997856	1 1619882	1394061	1482	8605939	23
38	5095421	2503	4904579	1 9625464	5921839	1 6996647	1 1621883	1395543	1482	8604457	22
39	5097924	2502	4902076	1 9615829	5925768	1 6995449	1 1623886	1397025	1484	8602975	21
40	5100426	2502	4899574	1 9606206	5929699	1 6994261	1 1625891	1398509	1484	8601491	20
41	5102928	2501	4897072	1 9596593	5933632	1 6993085	1 1627897	1399993	1484	8600007	19
42	5105429	2501	4894571	1 9586992	5937565	1 6991919	1 1629905	1401477	1486	8598523	18
43	5107930	2501	4892070	1 9577402	5941501	1 6990765	1 1631914	1402963	1486	8597037	17
44	5110431	2500	4889569	1 9567822	5945437	1 6989621	1 1633925	1404449	1487	8595551	16
45	5112931	2500	4887069	1 9558254	5949375	1 6988489	1 1635938	1405936	1488	8594064	15
46	5115431	2499	4884569	1 9548697	5953314	1 6987367	1 1637953	1407424	1488	8592576	14
47	5117930	2499	4882070	1 9539150	5957255	1 6986256	1 1639969	1408912	1489	8591086	13
48	5120429	2498	4879571	1 9529615	5961196	1 6985156	1 1641987	1410401	1490	8589599	12
49	5122927	2498	4877073	1 9520091	5965140	1 6984067	1 1644007	1411891	1490	8588109	11
50	5125425	2498	4874575	1 9510577	5969084	1 6982988	1 1646028	1413381	1492	8586619	10
51	5127923	2497	4872077	1 9501075	5973030	1 6981921	1 1648051	1414873	1492	8585127	9
52	5130420	2496	4869580	1 9491583	5976978	1 6980864	1 1650076	1416365	1492	8583635	8
53	5132916	2497	4867084	1 9482102	5980926	1 6979818	1 1652102	1417857	1494	8582143	7
54	5135413	2495	4864587	1 9472632	5984877	1 6978782	1 1654130	1419351	1494	8580649	6
55	5137908	2496	4862092	1 9463173	5988828	1 6977758	1 1656160	1420845	1495	8579155	5
56	5140404	2495	4859596	1 9453725	5992781	1 6976744	1 1658191	1422340	1496	8577660	4
57	5142899	2494	4857101	1 9444288	5996735	1 6975741	1 1660224	1423836	1496	8576164	3
58	5145393	2494	4854607	1 9434861	6000691	1 6974748	1 1662259	1425332	1497	8574668	2
59	5147887	2494	4852113	1 9425445	6004648	1 6973766	1 1664296	1426829	1498	8573171	1
60	5150381	2494	4849619	1 9416040	6008606	1 6972795	1 1666334	1428327		8571673	0
	Cofine	Diff	Verf	Secant	Cotan.	Tang	Cofec.	Coverf.	Diff	Sine	

30 Deg			Log Sines, &c										1309	
	Sine	Diff	Cofec	Verfedf	Tang	Diff	Cotang	Coveff	Secant	D	Cofine			
0	9 6989700	2187	10 3010300	9 1270225	9 7614394	917	10 2385606	9 6989700	10 0624694	722	9 9375306	60		
1	9 6991887	2186	10 3008113	9 1274938	9 7617311	916	10 238 689	9 6987512	10 06 5423	723	9 9374577	59		
2	9 6994073	2185	10 3005927	9 1279649	9 7620 7	2915	10 2379773	9 6985322	10 0626153	131	9 9373847	58		
3	9 6996258	2183	10 3003742	9 1284356	9 76 3142	2914	10 2376858	9 6983132	10 0626884	731	9 9373116	57		
4	9 6998441	2181	10 3001559	9 1 89062	9 7626056	2913	10 2373944	9 6980942	10 0627615	732	9 9372385	56		
5	9 7000622	2180	10 2999378	9 1293764	9 7628969	912	10 2371031	9 6978750	10 0628347	132	9 9371653	55		
6	9 7002802	2179	10 2997198	9 1298464	9 7631881	2911	10 2368119	9 6976558	10 0629079	732	9 9370921	54		
7	9 7004981	2177	10 2995019	9 1303161	9 7634792	2910	10 2365208	9 6974365	10 0629811	733	9 9370189	3		
8	9 7007158	2176	10 2992840	9 1307855	9 7637700	910	10 2362298	9 6972172	10 0630544	733	9 9369456	5		
9	9 7009334	2174	10 2990666	9 1312547	9 764061	908	10 2359388	9 6969977	10 0631278	734	9 9368724	51		
10	9 7011508	2173	10 2988492	9 1317235	9 764352	907	10 2356480	9 6967782	10 0632012	734	9 9367992	50		
11	9 7013681	2171	10 2986317	9 1321921	9 764642	2907	10 2353573	9 6965586	10 0632746	131	9 9367254	49		
12	9 7015852	2170	10 2984143	9 1326605	9 7649334	905	10 2350666	9 6963390	10 0633481	735	9 9366519	48		
13	9 7018022	168	10 2981978	9 1331286	9 7652231	904	10 2347761	9 6961199	10 0634217	736	9 9365785	47		
14	9 7020190	167	10 2979810	9 1335964	9 7655143	2904	10 2344851	9 6958994	10 0634953	736	9 9365047	46		
15	9 7022357	166	10 2977643	9 1340639	9 7658047	2903	10 2341943	9 6956795	10 0635683	736	9 9364311	45		
16	9 7024523	164	10 2975477	9 1345311	9 7660949	2902	10 2339035	9 6954596	10 0636416	737	9 9363574	44		
17	9 7026687	2162	10 2973313	9 1349981	9 7663851	900	10 2336149	9 6952396	10 0637164	738	9 9362836	43		
18	9 7028849	2162	10 2971151	9 1354648	9 7666751	900	10 233329	9 6950194	10 0637902	738	9 9362098	42		
19	9 7031011	2159	10 2968989	9 1359313	9 7669651	2899	0 23 343	9 6947993	10 0638640	738	9 9361360	41		
20	9 7033170	2159	10 2966830	9 1363975	9 7672550	899	10 2327450	9 6945790	10 0639379	739	9 9360621	40		
21	9 7035329	2159	10 2964671	9 1368634	9 7675448	899	10 2324552	9 6943587	10 0640119	740	9 9359881	39		
22	9 7037486	2157	10 2962514	9 1373300	9 7678341	2896	10 2321656	9 6941383	10 0640859	740	9 9359141	38		
23	9 7039641	2155	10 2960359	9 1377944	9 7681240	894	10 2318760	9 6939179	10 0641599	740	9 9358401	37		
24	9 7041795	2154	10 2958205	9 1382595	9 7684135	2895	10 2315865	9 6936973	10 0642340	741	9 9357660	36		
25	9 7043947	152	10 2956053	9 1387244	9 7687021	893	10 2312971	9 6934766	10 0643082	741	9 9356918	35		
26	9 7046099	2149	10 2953901	9 1391889	9 7689922	89	10 2310078	9 6932559	10 0643823	741	9 9356177	34		
27	9 7048248	2149	10 2951752	9 1396532	9 7692814	2891	10 2307186	9 6930352	10 0644566	743	9 9355434	33		
28	9 7050397	2146	10 2949603	9 1401173	9 7695705	891	10 2304295	9 6928143	10 0645309	743	9 9354691	32		
29	9 7052543	2146	10 2947457	9 1405811	9 7698596	891	10 2301401	9 6925934	10 064605	744	9 9353948	31		
30	9 7054689	2144	10 2945311	9 1410446	9 7701485	2888	10 2298513	9 6923721	10 0646796	744	9 9353201	30		
31	9 7056833	2142	10 2943167	9 1415078	9 7704373	888	10 2295627	9 6921513	10 0647541	745	9 9352459	29		
32	9 7058975	2141	10 2941025	9 1419708	9 7707261	886	10 2292739	9 6919300	10 0648285	746	9 9351715	28		
33	9 7061116	2140	10 2938884	9 1424335	9 7710147	886	10 2289853	9 6917090	10 0649031	746	9 9350969	27		
34	9 7063256	2138	10 2936744	9 1428960	9 7713033	2884	10 2286967	9 6914877	10 0649777	746	9 9350223	26		
35	9 7065394	2137	10 2934606	9 1433581	9 7715917	2884	10 2284083	9 6912663	10 0650523	746	9 9349477	25		
36	9 7067531	2136	10 2932469	9 1438201	9 7718801	2883	10 2281199	9 6910449	10 0651270	747	9 9348730	24		
37	9 7069667	2134	10 2930333	9 1442817	9 7721684	882	10 2278316	9 6908233	10 0652017	747	9 9347983	23		
38	9 7071801	2132	10 2928199	9 1447431	9 7724566	881	10 2275434	9 6906017	10 0652765	748	9 9347235	22		
39	9 7073933	2131	10 2926067	9 1452042	9 7727447	880	10 2272553	9 6903801	10 0653514	749	9 9346486	21		
40	9 7076064	2130	10 2923936	9 1456651	9 7730327	2879	10 2269673	9 6901583	10 0654262	748	9 9345738	20		
41	9 7078194	2129	10 2921806	9 1461257	9 7733206	877	10 2266794	9 6899365	10 0655012	750	9 9344988	19		
42	9 7080323	127	10 2919677	9 1465861	9 7736084	2878	10 2263916	9 6897146	10 0655762	750	9 9344238	18		
43	9 7082450	2125	10 2917550	9 1470461	9 7738961	877	10 2261039	9 6894926	10 0656512	750	9 9343488	17		
44	9 7084575	2124	10 2915425	9 1475060	9 7741838	875	10 2258162	9 6892706	10 0657263	751	9 9342737	16		
45	9 7086699	213	10 2913301	9 1479655	9 7744713	875	10 2255287	9 6890485	10 0658011	751	9 9341986	15		
46	9 7088822	2121	10 2911178	9 1484248	9 7747588	2874	10 2252412	9 6888263	10 0658766	752	9 9341234	14		
47	9 7090943	2121	10 2909057	9 1488838	9 7750462	874	10 2249538	9 6886040	10 0659518	752	9 9340482	13		
48	9 7093063	2119	10 2906937	9 1493426	9 7753334	2872	10 2246666	9 6883817	10 0660271	753	9 9339730	12		
49	9 7095182	2117	10 2904818	9 1498011	9 7756206	871	10 2243794	9 6881593	10 0661024	753	9 9338976	11		
50	9 7097299	2116	10 2902701	9 1502594	9 7759077	870	10 2240923	9 6879368	10 0661778	754	9 9338222	10		
51	9 7099415	2114	10 2900585	9 1507174	9 7761947	2869	10 2238053	9 6877142	10 0662533	755	9 9337467	9		
52	9 7101529	2114	10 2898471	9 1511751	9 7764816	867	10 2235184	9 6874915	10 0663287	754	9 9336713	8		
53	9 7103642	2113	10 2896358	9 1516326	9 7767685	2869	10 2232315	9 6872688	10 0664043	756	9 9335957	7		
54	9 7105753	2111	10 2894244	9 1520898	9 7770552	867	10 2229448	9 6870460	10 0664799	756	9 9335201	6		
55	9 7107863	2109	10 2892137	9 1525467	9 7773418	2866	10 2226582	9 6868231	10 0665555	756	9 9334445	5		
56	9 7109972	2108	10 2890028	9 1530034	9 7776284	865	10 2223716	9 6866002	10 0666312	757	9 9333688	4		
57	9 7112080	2106	10 2887920	9 1534599	9 7779149	2865	10 2220851	9 6863772	10 0667069	757	9 9332931	3		
58	9 7114186	2104	10 2885814	9 1539161	9 7782012	863	10 2217988	9 6861541	10 0667827	758	9 9332173	2		
59	9 7116290	2103	10 2883710	9 1543720	9 7784875	2863	10 2215125	9 6859309	10 0668585	758	9 9331415	1		
60	9 7118393	2103	10 2881607	9 1548276	9 7787731	862	10 2212263	9 6857076	10 0669344	759	9 9330656	0		
	Cofine	Diff	Secant	Coveff	Cotang	Diff	Tang	Verfedf	Cofec	D	Sine			

31 Deg		NATURAL SINES, &c							Tab 10	
	Sine.	Diff	Coverf	Cofec	Tang	Cotang	Secant	Verf	Diff	Cofine
0	5150381	2493	4849019	19416040	6008606	16642795	11666334	1428327	1199	8571671
1	5152874	493	4847126	19406646	6012566	16631834	11668774	1429826	1499	8570174
2	5155367	493	4844633	19397262	6016527	16620884	11670116	1431325	1500	8568675
3	5157859	492	4842141	19387889	6020490	16609945	11672459	1432825	1501	8567175
4	5160351	492	4839649	19378527	6024454	16599016	11674501	1434326	1501	8565674
5	5162844	491	4837158	19369176	6028419	16588097	11676551	1435827	1502	8564173
6	5165333	491	4834667	19359835	6032386	16577189	11678599	1437329	1503	8562671
7	5167824	490	4832176	19350505	6036354	16566292	11680649	143883	1504	8561169
8	5170314	490	4829686	19341185	6040323	16555405	11682701	1440336	1504	8559664
9	5172804	489	4827196	19331876	6044294	16544529	11684755	1441840	1505	8558160
10	5175293	489	4824707	19322578	6048266	16533663	11686810	1443345	1506	8556655
11	5177782	488	4822218	19313290	6052240	16522808	11688867	1444851	1506	8555149
12	5180270	488	4819730	19304013	6056215	16511963	11690926	1446357	1508	8553643
13	5182758	488	4817241	19294746	6060191	16501128	11692986	1447865	1508	8552135
14	5185246	487	4814754	19285490	6064170	16490304	11695048	1449373	1508	8550627
15	5187733	486	4812267	19276244	6068149	16479490	11697111	1450881	1510	8549119
16	5190219	486	4809781	19267009	6072130	16468687	11699178	1452391	1510	8547609
17	5192705	486	4807295	19257784	6076111	16457893	11701245	1453901	1511	8546099
18	5195191	485	4804809	19248570	6080095	16447111	11703314	1455412	1511	8544588
19	5197676	485	4802324	19239366	6084080	16436338	11705385	1456923	1513	8543077
20	5200161	485	4799839	19230173	6088067	16425576	11707457	1458436	1513	8541564
21	5202646	484	4797354	19220990	6092054	16414824	11709531	1459949	1513	8540051
22	5205130	484	4794870	19211817	6096043	16404082	11711607	1461462	1515	8538538
23	5207613	483	4792387	19202655	6100034	16393351	11713685	1462977	1515	8537023
24	5210096	483	4789904	19193503	6104026	16382630	11715764	1464492	1516	8535508
25	5212579	482	4787421	19184362	6108019	16371919	11717843	1466008	1517	8533992
26	5215061	482	4784939	19175230	6112014	16361218	11719928	1467525	1517	8532475
27	5217543	481	4782457	19166110	6116011	16350528	11722013	1469042	1518	8530958
28	5220024	481	4779976	19156999	6120008	16339847	11724099	1470560	1519	8529440
29	5222505	481	4777495	19147899	6124007	16329177	11726187	1472079	1519	8527921
30	5224986	480	4775014	19138809	6128008	16318517	11728277	1473598	1521	8526401
31	5227466	479	4772534	19129729	6132010	16307867	11730368	1475119	1521	8524881
32	5229945	479	4770055	19120659	6136013	16297227	11732462	1476640	1521	8523360
33	5232424	479	4767576	19111600	6140018	16286597	11734557	1478161	1523	8521839
34	5234903	478	4765097	19102551	6144024	16275977	11736653	1479684	1523	8520316
35	5237381	478	4762619	19093512	6148031	16265368	11738752	1481207	1524	8518793
36	5239859	477	4760141	19084483	6152041	16254768	11740852	1482731	1524	8517269
37	5242336	477	4757664	19075464	6156051	16244178	11742954	1484255	1526	8515745
38	5244813	477	4755187	19066456	6160064	16233599	11745058	1485781	1526	8514219
39	5247290	476	4752710	19057457	6164077	16223029	11747163	1487307	1526	8512693
40	5249766	476	4750234	19048460	6168092	16212469	11749270	1488833	1528	8511167
41	5252241	475	4747759	19039471	6172108	16201920	11751379	1490361	1528	8509639
42	5254717	474	4745283	19030522	6176126	16191380	11753490	1491889	1528	8508111
43	5257191	474	4742809	19021564	6180145	16180850	11755603	1493418	1529	8506582
44	5259665	474	4740335	19012616	6184166	16170330	11757717	1494947	1531	8505053
45	5262139	474	4737861	19003678	6188188	16159820	11759833	1496478	1531	8503522
46	5264613	472	4735387	18994750	6192211	16149320	11761951	1498009	1531	8501991
47	5267085	472	4732915	18985832	6196236	16138829	11764070	1499541	1533	8500459
48	5269558	472	4730442	18976924	6200263	16128349	11766191	1501073	1533	8498927
49	5272030	472	4727970	18968026	6204291	16117878	11768311	1502606	1534	8497394
50	5274502	471	4725498	18959138	6208320	16107417	11770439	1504140	1535	8495860
51	5276973	471	4723027	18950259	6212351	16096966	11772566	1505675	1535	8494325
52	5279443	471	4720557	18941391	6216383	16086525	11774694	1507210	1536	8492790
53	5281914	469	4718086	18932532	6220417	16076094	11776824	1508746	1536	8491254
54	5284383	469	4715617	18923684	6224452	16065672	11778956	1510283	1537	8489717
55	5286853	469	4713147	18914845	6228488	16055260	11781089	1511821	1538	8488179
56	5289322	468	4710678	18906016	6232527	16044858	11783225	1513359	1539	8486641
57	5291790	468	4708210	18897197	6236566	16034465	11785362	1514898	1540	8485102
58	5294258	468	4705742	18888388	6240607	16024082	11787501	1516438	1540	8483562
59	5296726	467	4703274	18879589	6244650	16013709	11789642	1517978	1541	8482022
60	5299193	467	4700807	18870799	6248694	16003345	11791784	1519519	1541	8480481
	Cofine	Diff	Verf.	Secant	Cotan.	Tang	Cofec.	Coverf	Diff	Sine

Log Sines, &c												(311)
1 Deg	Sine	Diff	Cosec	Verifd	Lang	Diff	Cotang	Coverf	Secant	D	Cofine	
0	9 7118393	102	10 2881607	1548 76	9 7787737	2862	10 2 12263	9 6857076	10 0669314	759	9 2330656	
1	9 7120495	101	10 2879505	1552631	9 7770599	860	10 2209101	9 6854813	10 0670103	759	9 2329891	
2	9 7122596	101	10 2877404	155738	9 7793459	859	10 2206541	9 6852609	10 0670863	760	9 2329137	
3	9 7124695	2099	10 875305	1561931	9 7796318	2857	10 220366	9 6850374	10 0671624	761	9 2328376	
4	9 7126792	097	10 2873208	1566477	9 7799177	851	10 2200873	9 6848139	10 0672384	761	9 2327616	
5	9 7128889	2097	10 2871111	1571021	9 7802031	2857	10 2197166	9 6845902	10 0673146	762	9 2326854	
6	9 7130983	014	10 2869017	1575562	9 7804811	2856	10 2195109	9 6843665	10 0673908	762	9 232609	
7	9 7133077	2094	10 866923	1580101	9 7807711	855	10 219 53	9 6841428	10 0674670	763	9 2325330	
8	9 7135169	2012	10 2864831	1584637	9 7810602	854	10 2189398	9 6839189	10 0675433	763	9 2324561	
9	9 7137260	2091	10 2862740	1589171	9 7813456	2853	10 2186514	9 6836950	10 0676196	764	9 2323801	
10	9 7139349	2089	10 2860651	1593702	9 7816309	2853	10 2183691	9 6834710	10 0676960	764	9 2323040	
11	9 7141437	2088	10 2858563	1598230	9 781916	2851	10 2180838	9 6832469	10 0677724	765	9 2322276	
12	9 7143524	2087	10 2856476	1602756	9 7822013	2851	10 2177987	9 6830228	10 0678489	765	9 2321511	
13	9 7145609	2085	10 2854391	1607280	9 7824861	2849	10 2175136	9 6827985	10 0679254	766	9 2320746	
14	9 7147693	2084	10 2852307	1611800	9 7827713	843	10 2172285	9 6825741	10 0680020	767	9 2319980	
15	9 7149776	2083	10 2850224	1616319	9 783056	2845	10 2169438	9 6823498	10 0680787	767	9 2319213	
16	9 7151857	2081	10 2848143	1620835	9 7833410	848	10 2166590	9 6821253	10 0681553	768	9 2318447	
17	9 7153937	2080	10 2846063	1625348	9 7836258	2846	10 2163744	9 6819007	10 0682311	768	9 2317671	
18	9 7156015	2078	10 2843985	1629859	9 7839104	2845	10 2160896	9 6816761	10 0683089	769	9 2316911	
19	9 715809	2077	10 2841908	1634367	9 7841949	845	10 2158051	9 6814514	10 0683857	769	9 2316143	
20	9 7160168	2076	10 2839832	1638873	9 7844794	844	10 2155206	9 6812266	10 0684626	770	9 2315371	
21	9 7162243	2075	10 2837757	1643376	9 7847638	843	10 2152362	9 6810018	10 0685395	770	9 2314605	
22	9 7164316	2073	10 2835684	1647876	9 7850481	841	10 2149519	9 6807769	10 0686165	771	9 2313835	
23	9 7166387	2071	10 2833613	1652374	9 7853323	2841	10 2146677	9 6805519	10 0686935	771	9 2313065	
24	9 7168458	2071	10 2831542	1656870	9 7856164	840	10 2143836	9 6803268	10 0687706	772	9 2312291	
25	9 7170526	2068	10 2829471	1661363	9 7859001	2840	10 2140996	9 6801016	10 0688478	772	9 2311522	
26	9 7172594	2068	10 2827406	1665854	9 7861844	2838	10 2138156	9 6798764	10 0689250	772	9 2310751	
27	9 7174660	2066	10 2825340	1670342	9 7864682	2838	10 2135318	9 6796511	10 0690022	773	9 2309978	
28	9 7176725	2065	10 2823275	1674828	9 7867520	837	10 2132480	9 6794257	10 0690795	773	9 2309205	
29	9 7178789	2064	10 2821211	1679311	9 7870357	836	10 2129643	9 6792002	10 0691568	774	9 2308432	
30	9 7180851	2062	10 2819149	1683791	9 7873193	2835	10 2126807	9 6789747	10 0692341	775	9 2307658	
31	9 7182912	061	10 2817088	1688266	9 7876028	2835	10 212397	9 6787491	10 0693117	775	9 2306883	
32	9 7184971	2059	10 2815029	1692745	9 7878863	2833	10 2121137	9 6785234	10 0693891	776	9 2306109	
33	9 7187030	2059	10 2812970	1697218	9 7881696	2833	10 211831	9 6782976	10 0694667	776	9 2305333	
34	9 7189086	2056	10 2810914	1701689	9 7884529	2832	10 2115471	9 6780717	10 0695443	776	9 2304557	
35	9 7191142	056	10 2808858	1706157	9 7887361	2831	10 2112630	9 6778458	10 0696219	777	9 2303781	
36	9 7193196	051	10 2806804	1710623	9 7890192	2831	10 2109788	9 6776198	10 0696996	777	9 2303001	
37	9 7195249	2053	10 2804751	1715086	9 7893023	2831	10 2106947	9 6773937	10 0697774	778	9 2302226	
38	9 7197300	2051	10 2802700	1719547	9 7895852	2829	10 2104108	9 6771676	10 0698552	778	9 2301448	
39	9 7199350	2050	10 2800650	1724005	9 7898681	827	10 2101269	9 6769413	10 0699330	779	9 2300670	
40	9 7201399	2049	10 2798601	1728461	9 7901508	2827	10 2098429	9 6767150	10 0700109	779	9 2299891	
41	9 7203447	2048	10 2796553	1732914	9 7904335	2826	10 2095586	9 6764886	10 0700888	780	9 2299112	
42	9 7205493	2046	10 2794507	1737365	9 7907161	2826	10 2092743	9 6762622	10 0701668	781	9 2298332	
43	9 7207538	2045	10 2792462	1741813	9 7909987	2824	10 2089901	9 6760356	10 0702449	781	9 2297551	
44	9 7209581	2043	10 2790419	1746255	9 7912811	2824	10 2087059	9 6758090	10 0703230	781	9 2296770	
45	9 72116 3	04	10 2788377	1750703	9 7915635	2823	10 2084216	9 6755823	10 0704011	782	9 2295989	
46	9 7213664	2041	10 2786336	1755144	9 7918458	2822	10 2081374	9 6753555	10 0704793	783	9 2295207	
47	9 7215704	2040	10 2784296	175958	9 7921280	2821	10 2078532	9 6751287	10 0705576	783	9 2294424	
48	9 7217742	2038	10 2782258	1764018	9 7924101	2820	10 2075690	9 6749017	10 0706359	784	9 2293641	
49	9 7219779	2037	10 2780221	1768452	9 7926921	2820	10 2072847	9 6746747	10 0707143	784	9 2292857	
50	9 7221814	2035	10 2778186	1772883	9 7929741	2819	10 2070005	9 6744476	10 0707927	784	9 2292073	
51	9 7223848	2034	10 2776152	1777312	9 7932560	2818	10 2067162	9 6742205	10 0708711	785	9 2291289	
52	9 7225881	2033	10 2774119	1781738	9 7935378	2817	10 2064319	9 6739932	10 0709496	786	9 2290504	
53	9 7227913	2032	10 2772087	1786162	9 7938195	2816	10 2061476	9 6737659	10 0710282	786	9 2289718	
54	9 7229943	2030	10 2770057	1790584	9 7941011	816	10 2058633	9 6735385	10 0711068	787	9 2288932	
55	9 7231972	2029	10 2768028	1795003	9 7943827	2814	10 2055790	9 6733110	10 0711855	787	9 2288145	
56	9 7234000	2028	10 2766000	1799419	9 7946641	2814	10 2052947	9 6730835	10 0712642	787	9 2287358	
57	9 7236026	2026	10 2763974	1803833	9 7949455	2813	10 2050104	9 6728558	10 0713429	788	9 2286571	
58	9 7238051	2025	10 2761949	1808245	9 7952268	2813	10 2047261	9 6726281	10 0714217	789	9 2285783	
59	9 7240075	2024	10 2759925	1812655	9 7955081	2811	10 2044418	9 6724003	10 0715006	789	9 2284994	
60	9 7242097	2022	10 2757903	1817061	9 7957892	2811	10 2041575	9 6721725	10 0715795	789	9 2284205	
	Cofine	Diff	Secant	Coverf	Cotang	Diff	Lang	Verifd	Cosec	D	Sine	
											Deg	

32 Deg.		NATURAL SINES, &c								Tab 10	
	Sine	Diff	Coverd	Cofec	Ting	Cotang.	Secant	Verf	Diff	Cohne	
0	5299193	2466	4700807	18870799	6248694	16003345	11791784	1519519	1542	8480481	60
1	5301659	2466	4698341	18862019	6252739	15992991	11793928	1521061	1542	8478939	59
2	5304125	2466	4695875	18853249	6256786	15982647	11796074	1522603	1544	8477397	58
3	5306591	2466	4693409	18844489	6260834	15972312	11798222	1524147	1544	8475855	57
4	5309057	2464	4690943	18835738	6264884	15961987	11800372	1525691	1544	8474309	56
5	5311521	2464	4688479	18826998	6268935	15951672	11802523	1527235	1544	8472765	55
6	5313986	2465	4686014	18818266	6272988	15941366	11804676	1528781	1546	8471219	54
7	5316450	2464	4683550	18809545	6277042	15931070	11806831	1530327	1546	8469673	53
8	5318913	2463	4681087	18800833	6281098	15920783	11808988	1531874	1547	8468126	52
9	5321376	2463	4678624	18792131	6285155	15910505	11811146	1533421	1547	8466579	51
10	5323839	2463	4676161	18783438	6289211	15900238	11813307	1534970	1549	8465030	50
11	5326301	2462	4673699	18774755	6293274	15889979	11815469	1536519	1549	8463481	49
12	5328763	2462	4671237	18766082	6297336	15879731	11817633	1538068	1549	8461931	48
13	5331224	2461	4668776	18757419	6301399	15869491	11819798	1539619	1551	8460381	47
14	5333685	2461	4666315	18748764	6305464	15859261	11821966	1541170	1551	8458830	46
15	5336145	2460	4663855	18740120	6309530	15849041	11824135	1542722	1552	8457278	45
16	5338605	2460	4661395	18731485	6313598	15838830	11826306	1544271	1552	8455726	44
17	5341065	2460	4658935	18722859	6317667	15828628	11828479	1545828	1554	8454172	43
18	5343523	2458	4656477	18714244	6321738	15818436	11830654	1547382	1554	8452618	42
19	5345982	2459	4654018	18705637	6325810	15808253	11832830	1548936	1554	8451064	41
20	5348440	2458	4651560	18697040	6329883	15798079	11835008	1550492	1556	8449508	40
21	5350898	2458	4649102	18688453	6333959	15787915	11837188	1552048	1556	8447952	39
22	5353355	2457	4646645	18679875	6338035	15777760	11839370	1553605	1557	8446395	38
23	5355812	2457	4644188	18671306	6342113	15767615	11841554	1555162	1557	8444838	37
24	5358268	2456	4641732	18662747	6346193	15757479	11843739	1556721	1559	8443279	36
25	5360724	2456	4639276	18654197	6350271	15747352	11845927	1558280	1559	8441720	35
26	5363179	2455	4636821	18645657	6354357	15737234	11848116	1559839	1559	8440161	34
27	5365634	2455	4634366	18637126	6358441	15727126	11850307	1561400	1561	8438600	33
28	5368089	2455	4631911	18628605	6362527	15717026	11852500	1562961	1561	8437039	32
29	5370543	2454	4629457	18620093	6366614	15706936	11854694	1564523	1562	8435477	31
30	5372996	2453	4627004	18611590	6370703	15696856	11856890	1566086	1563	8433914	30
31	5375449	2453	4624551	18603097	6374793	15686784	11859089	1567649	1563	8432351	29
32	5377902	2453	4622098	18594612	6378885	15676722	11861289	1569213	1564	8430787	28
33	5380354	2452	4619646	18586138	6382978	15666669	11863490	1570778	1565	8429222	27
34	5382806	2452	4617194	18577672	6387073	15656625	11865694	1572343	1565	8427657	26
35	5385257	2451	4614743	18569216	6391169	15646590	11867900	1573909	1566	8426091	25
36	5387708	2451	4612292	18560769	6395267	15636564	11870107	1575476	1567	8424524	24
37	5390158	2450	4609842	18552331	6399366	15626548	11872316	1577044	1568	8422956	23
38	5392608	2450	4607392	18543903	6403467	15616540	11874527	1578612	1568	8421388	22
39	5395058	2450	4604942	18535483	6407569	15606542	11876740	1580181	1569	8419819	21
40	5397507	2449	4602493	18527073	6411673	15596552	11878954	1581751	1570	8418249	20
41	5399955	2448	4600045	18518672	6415779	15586572	11881171	1583321	1570	8416679	19
42	5402403	2448	4597597	18510281	6419886	15576601	11883389	1584892	1571	8415108	18
43	5404851	2448	4595149	18501898	6423994	15566639	11885609	1586464	1572	8413536	17
44	5407298	2447	4592701	18493525	6428105	15556685	11887831	1588037	1573	8411963	16
45	5409745	2447	4590255	18485161	6432216	15546741	11890055	1589610	1573	8410390	15
46	5412191	2446	4587809	18476806	6436329	15536806	11892280	1591184	1574	8408816	14
47	5414637	2446	4585363	18468460	6440444	15526880	11894508	1592759	1575	8407241	13
48	5417082	2445	4582918	18460123	6444560	15516963	11896737	1594334	1575	8405666	12
49	5419527	2445	4580473	18451795	6448678	15507054	11898968	1595910	1576	8404090	11
50	5421971	2444	4578029	18443476	6452797	15497155	11901201	1597487	1577	8402513	10
51	5424415	2444	4575585	18435166	6456918	15487264	11903436	1599064	1577	8400936	9
52	5426859	2444	4573141	18426866	6461041	15477383	11905673	1600643	1579	8399357	8
53	5429302	2443	4570698	18418574	6465165	15467510	11907911	1602222	1579	8397778	7
54	5431744	2442	4568256	18410292	6469290	15457647	11910152	1603801	1579	8396199	6
55	5434187	2443	4565813	18402018	6473417	15447792	11912394	1605382	1581	8394618	5
56	5436628	2441	4563372	18393753	6477546	15437946	11914638	1606963	1581	8393037	4
57	5439069	2441	4560931	18385498	6481676	15428108	11916884	1608545	1582	8391455	3
58	5441510	2441	4558490	18377251	6485808	15418280	11919132	1610127	1582	8389873	2
59	5443951	2441	4556049	18369013	6489941	15408460	11921381	1611710	1583	8388290	1
60	5446390	2439	4553610	18360785	6494076	15398650	11923633	1613294	1584	8386706	0
	Cofine	Diff	Verf	Secant	Cotan.	Tang.	Cofec.	Coverd	Diff	Sine	

32 Deg		Log Sines, &c										(313)	
	Sine	Diff	Cofec	Versedf	Tang	Diff	Cotang	Coverf	Secant	D	Cofine		
0	97242097	2021	104757903	91817061	97957892	2811	102042108	96721725	100715795	790	99284205	60	
1	97244118	2020	102755882	91821466	97960703	2810	102039297	96719445	100716585	790	99283415	59	
2	97246138	2018	102753862	91825868	97963513	2809	102036487	96717165	100717375	790	99282625	58	
3	97248156	2018	102751844	91830268	97966322	2808	102033678	96714884	100718166	791	99281834	57	
4	97250174	2015	102749826	91834665	97969130	2808	102030870	96712602	100718957	791	99281043	56	
5	9725189	2015	102747811	91839060	97971938	2807	102028062	96710319	100719749	792	99280251	55	
6	9725404	013	102745796	91843452	97974745	2806	102025255	96708036	100720541	792	99279459	54	
7	9725617	01	102743783	9184784	97977551	2805	102022449	96705752	100721334	793	99278666	53	
8	9725829	011	102741771	91852230	97980356	2804	102019644	96703467	100722127	793	99277873	52	
9	9726043	2009	102739760	91856615	97983160	2804	102016840	96701181	100722919	794	99277079	51	
10	9726249	008	102737751	91860998	97985964	2803	102014036	96698895	100723715	794	99276285	50	
11	9726457	2007	102735743	91865378	97988767	2802	102011233	96696607	100724510	795	99275490	49	
12	9726664	2005	102733736	91869756	97991569	2801	102008431	96694319	100725305	795	99274695	48	
13	9726869	004	102731731	91874132	97994370	2800	102005630	96692030	100726101	796	99273899	47	
14	9727073	003	102729724	91878505	97997170	2800	102002830	96689741	100726897	796	99273103	46	
15	9727276	2002	102727724	91882876	97999970	2799	102000030	96687450	100727694	797	99272306	45	
16	9727478	2000	102725722	91887245	98002769	2798	101997231	96685159	100728491	797	99271509	44	
17	9727681	1999	102723722	91891611	98005567	2798	101994433	96682867	100729289	798	99270711	43	
18	9727877	1998	102721723	91895974	98008365	2796	101991635	96680574	100730087	799	99269913	42	
19	9728083	1996	102719725	91900336	98011161	2796	101988839	96678281	100730886	800	99269114	41	
20	9728271	1996	102717729	91904695	98013957	2795	101986043	96675986	100731686	800	99268314	40	
21	9728467	1993	102715733	91909051	98016752	2794	101983248	96673691	100732486	800	99267514	39	
22	9728660	1993	102713740	91913406	98019546	2794	101980454	96671395	100733286	801	99266714	38	
23	9728853	1991	102711747	91917758	98022340	2793	101977660	96669098	100734087	801	99265913	37	
24	9729044	1990	102709756	91922107	98025133	2792	101974867	96666801	100734888	802	99265112	36	
25	9729234	1989	102707766	91926454	98027925	2791	101972075	96664502	100735690	803	99264310	35	
26	9729423	1988	102705777	91930799	98030716	2790	101969281	96662203	100736493	803	99263507	34	
27	9729611	1986	102703789	9193514	98033506	2790	101966494	96659903	100737296	803	99262704	33	
28	9729807	1985	102701803	91939482	98036296	2789	101963704	96657603	100738099	804	99261901	32	
29	973000182	1983	102699818	91943819	98039085	2788	101960915	96655301	100738904	804	99261096	31	
30	97302165	1983	102697835	91948155	98041877	2788	101958127	96653000	100739708	805	99260292	30	
31	97304148	1981	102695852	91952488	98044661	2786	101955339	96650696	100740513	806	99259487	29	
32	9730619	1980	102693871	91956819	98047447	2786	101952553	96648392	100741319	806	99258681	28	
33	97308109	1978	102691891	91961147	98050233	2786	101949767	96646087	100742125	806	99257875	27	
34	97310087	1977	102689913	91965473	98053019	2784	101946981	96643781	100742931	808	99257069	26	
35	97312064	1976	102687936	91969797	98055803	2784	101944197	96641475	100743739	807	99256261	25	
36	97314040	1975	102685960	91974118	98058587	2783	101941413	96639168	100744546	808	99255451	24	
37	97316015	1974	102683985	91978437	98061370	2782	101938630	96636860	100745354	809	99254646	23	
38	97317989	1972	102682011	91982751	98064152	2781	101935848	96634552	100746163	809	99253837	22	
39	97319961	1971	102680039	91987068	98066933	2781	101933067	96632242	100746972	810	99253028	21	
40	97321932	1970	102678068	91991380	98069714	2780	101930286	96629931	100747782	810	99252218	20	
41	9732390	1968	102676098	91995690	98072494	2779	101927506	96627621	100748592	811	99251408	19	
42	97325870	1967	102674130	91999997	98075273	2779	101924727	96625309	100749403	811	99250597	18	
43	97327837	1966	102672163	92004302	98078052	2777	101921948	96622996	100750214	812	99249786	17	
44	97329803	1965	102670197	92008605	98080829	2777	101919171	96620683	100751026	813	99248974	16	
45	97331768	1963	102668232	92012906	98083606	2777	101916394	96618368	100751839	812	99248161	15	
46	97333731	1962	102666269	92017204	98086383	2775	101913617	96616053	100752651	814	99247349	14	
47	97335693	1961	102664307	92021499	98089158	2775	101910842	96613737	100753465	814	99246537	13	
48	97337654	1960	102662346	92025793	98091933	2774	101908067	96611421	100754279	814	99245721	12	
49	97339614	1958	102660386	92030084	98094707	2773	101905293	96609103	100755093	815	99244907	11	
50	97341572	1957	102658428	92034373	98097480	2773	101902520	96606785	100755908	815	99244092	10	
51	9734359	1956	102656471	92038660	98100251	2772	101899747	96604466	100756723	816	99243277	9	
52	97345485	1955	102654515	92042943	98103025	2771	101896975	96602146	100757539	817	99242461	8	
53	97347440	1953	102652560	92047226	98105796	2770	101894204	96600025	100758356	817	99241644	7	
54	97349393	1952	102650607	92051506	98108566	2770	101891434	96597904	100759173	817	99240827	6	
55	97351345	1951	102648655	92055783	98111336	2769	101888661	96595782	100759990	819	99240010	5	
56	97353296	1950	102646701	92060058	98114105	2768	101885895	96593658	100760809	818	99239191	4	
57	97355246	1949	102644754	92064331	98116873	2768	101883127	96591535	100761627	819	99238373	3	
58	97357195	1947	102642805	92068602	98119641	2767	101880359	96589410	100762446	820	99237554	2	
59	97359142	1946	102640858	92072870	98122408	2766	101877592	96587284	100763266	820	99236734	1	
60	97361088		102638912	92077136	98125174		101874826	96585158	100764086		99235914	0	
Cofine	Diff	Secant	Coverf	Cotang.	Diff	Tang.	Versedf	Cofec.	D	Sine			

33 Deg.		NATURAL SINES, &c.							Tab. 10		
	Sine	Diff	Coverf	Cofec.	Tang	Cotang	Secant	Verf	Diff	Cohne	
0	5446390	2440	4553610	18360785	6494076	15398650	11923633	1613291	1585	8386706	60
1	5448830	439	4551170	18352565	6498212	15388848	11925886	1614879	1585	8385121	59
2	5451269	438	4548731	18344354	6502350	15379054	11928142	1616464	1586	8383536	58
3	5453707	438	4546293	18336151	6506490	15369270	11930399	1618050	1587	8381950	57
4	5456145	438	4543855	18327959	6510631	15359494	11932658	1619637	1587	8380363	56
5	5458583	437	4541417	18319774	6514774	15349727	11934918	1621225	1588	8378775	55
6	5461020	436	4538980	18311599	6518918	15339969	11937181	1622813	1588	8377187	54
7	5463456	436	4536544	18303432	6523064	15330219	11939446	1624402	1589	8375598	53
8	5465892	436	4534108	18295274	6527211	15320479	11941712	1625991	1589	8374009	52
9	5468328	436	4531672	18287125	6531360	15310746	11943980	1627581	1591	8372418	51
10	5470763	435	4529237	18278985	6535511	15301023	11946251	1629173	1591	8370827	50
11	5473198	435	4526802	18270854	6539663	15291308	11948523	1630764	1591	8369236	49
12	5475632	434	4524368	18262731	6543817	15281602	11950796	1632357	1593	8367643	48
13	5478066	433	4521934	18254617	6547972	15271904	11953072	1633950	1593	8366050	47
14	5480499	433	4519501	18246512	6552129	15262215	11955350	1635544	1594	8364456	46
15	5482932	433	4517068	18238416	6556287	15252535	11957629	1637138	1594	8362862	45
16	5485365	433	4514635	18230328	6560447	15242863	11959911	1638734	1596	8361266	44
17	5487797	432	4512203	18222249	6564609	15233200	11962194	1640330	1596	8359670	43
18	5490228	431	4509772	18214179	6568772	15223545	11964479	1641926	1596	8358074	42
19	5492659	431	4507341	18206118	6572937	15213899	11966767	1643524	1598	8356470	41
20	5495090	430	4504910	18198065	6577103	15204261	11969056	1645122	1598	8354878	40
21	5497520	430	4502480	18190021	6581271	15194631	11971346	1646721	1599	8353279	39
22	5499950	429	4500050	18181985	6585441	15185012	11973639	1648320	1599	8351680	38
23	5502379	428	4497621	18173958	6589612	15175400	11975934	1649920	1600	8350080	37
24	5504807	428	4495193	18165940	6593785	15165796	11978230	1651521	1601	8348479	36
25	5507236	427	4492764	18157930	6597960	15156201	11980529	1653123	1602	8346877	35
26	5509663	427	4490337	18149929	6602136	15146614	11982829	1654725	1602	8345275	34
27	5512091	427	4487909	18141937	6606313	15137036	11985131	1656328	1603	8343672	33
28	5514518	427	4485482	18133953	6610492	15127466	11987435	1657932	1604	8342068	32
29	5516944	426	4483056	18125977	6614673	15117905	11989741	1659537	1605	8340463	31
30	5519370	426	4480630	18118010	6618856	15108352	11992049	1661142	1605	8338858	30
31	5521795	425	4478205	18110052	6623040	15098807	11994359	1662748	1606	8337252	29
32	5524220	425	4475780	18102102	6627225	15089271	11996671	1664354	1606	8335640	28
33	5526645	425	4473355	18094161	6631413	15079743	11998985	1665962	1608	8334038	27
34	5529069	424	4470931	18086228	6635601	15070224	12001300	1667570	1608	8332430	26
35	5531492	423	4468508	18078304	6639792	15060713	12003618	1669178	1608	8330822	25
36	5533915	423	4466085	18070388	6643984	15051210	12005937	1670788	1610	8329212	24
37	5536338	422	4463661	18062481	6648178	15041716	12008258	1672398	1610	8327601	23
38	5538760	422	4461240	18054582	6652373	15032229	12010582	1674009	1611	8325991	22
39	5541182	422	4458818	18046691	6656570	15022751	12012907	1675620	1611	8324380	21
40	5543603	421	4456397	18038809	6660769	15013282	12015234	1677232	1612	8322768	20
41	5546024	421	4453976	18030935	6664969	15003821	12017563	1678845	1613	8321155	19
42	5548444	420	4451556	18023070	6669171	14994367	12019894	1680459	1614	8319541	18
43	5550864	419	4449136	18015213	6673374	14984923	12022226	1682073	1614	8317927	17
44	5553283	419	4446717	18007365	6677580	14975486	12024561	1683688	1615	8316311	16
45	5555702	419	4444298	17999524	6681786	14966058	12026898	1685304	1616	8314696	15
46	5558121	419	4441879	17991693	6685995	14956637	12029236	1686920	1616	8313080	14
47	5560539	418	4439461	17983869	6690205	14947225	12031577	1688537	1617	8311465	13
48	5562956	417	4437044	17976054	6694417	14937822	12033919	1690155	1618	8309845	12
49	5565373	417	4434627	17968247	6698630	14928426	12036264	1691774	1619	8308226	11
50	5567790	416	4432210	17960449	6702845	14919039	12038610	1693393	1619	8306607	10
51	5570206	416	4429794	17952658	6707061	14909659	12040958	1695013	1620	8304987	9
52	5572621	415	4427379	17944876	6711280	14900288	12043308	1696634	1621	8303366	8
53	5575036	415	4424964	17937102	6715500	14890925	12045650	1698255	1621	8301745	7
54	5577451	415	4422549	17929337	6719721	14881570	12048014	1699877	1622	8300123	6
55	5579865	414	4420135	17921580	6723944	14872223	12050370	1701500	1623	8298500	5
56	5582279	414	4417721	17913831	6728169	14862884	12052728	1703123	1623	8296877	4
57	5584692	413	4415308	17906090	6732396	14853554	12055088	1704748	1625	8295252	3
58	5587105	413	4412895	17898357	6736624	14844231	12057450	1706372	1621	8293628	2
59	5589517	412	4410483	17890633	6740854	14834916	12059814	1707998	1626	8292002	1
60	5591929	412	4408071	17882916	6745085	14825610	12062179	1709624	1626	8290376	0
	Cofine	Diff	Verf.	Secant	Cotan.	Tang.	Cofec	Coverf	Diff	Sine	7

33 Deg		LOG SINES, &c.										(315)
Sine	Diff	Cofec	Verfied	Tang	Diff	Cotang	Coverf	Secant	D	Cofine		
0 7361088	1944	10 2638912	9 2077136	9 8125174	2765	10 1874826	9 6583558	10 0764086	821	9 9235114	60	
1 7363032	1944	10 636968	9 2081400	9 8127939	2765	10 1872061	9 6581231	10 0764907	821	9 9235093	59	
2 7364976	191	10 635021	9 2085661	9 8130704	2764	10 1869296	9 6578903	10 0765728	821	9 92347	58	
3 7366918	1941	10 2633082	9 2089909	9 8133468	2764	10 1866532	9 657654	10 0766550	821	9 9233450	57	
4 7368859	1940	10 2631141	9 2094177	9 8136231	2763	10 1863769	9 657425	10 076732	823	9 923268	56	
5 7370799	1938	10 629201	9 2098432	9 8138913	2762	10 1861007	9 6571914	10 0768195	823	9 9231805	55	
6 737273	1938	10 2627263	9 210684	9 8141755	2762	10 1858245	9 6569583	10 0769018	824	9 923098	54	
7 737461	1936	10 2625325	9 2106934	9 8144516	2761	10 1855481	9 656751	10 0769842	824	9 930155	53	
8 7376611	1935	10 2623389	9 2111182	9 8147277	2761	10 1852723	9 65654318	10 0770666	825	9 929334	52	
9 7378546	1933	10 2621454	9 2115428	9 8150036	2759	10 1849964	9 6563253	10 0771491	825	9 928509	51	
10 7380479	1933	10 2619521	9 2119671	9 8152795	2759	10 1847205	9 6561025	10 0772316	825	9 927684	50	
11 7382412	1931	10 2617588	9 2123912	9 8155554	2759	10 1844446	9 65587915	10 0773142	826	9 926858	49	
12 7384343	1930	10 2615657	9 2128151	9 8158311	2757	10 1841689	9 6556559	10 0773968	827	9 926032	48	
13 738673	1928	10 2613727	9 2132388	9 8161068	2757	10 1838932	9 655434	10 0774795	828	9 925205	47	
14 738801	1928	10 2611799	9 2136622	9 816384	2756	10 1836176	9 6552094	10 077563	828	9 924377	46	
15 7390129	1926	10 2609871	9 2140854	9 8166580	2756	10 183340	9 6549856	10 0776451	828	9 923549	45	
16 7392055	1925	10 2607945	9 2145084	9 8169335	2755	10 1830665	9 6547622	10 0777279	830	9 922721	44	
17 7393980	1924	10 2606020	9 2149311	9 8172089	2754	10 1827911	9 6545387	10 0778109	829	9 921891	43	
18 7395901	1923	10 2604096	9 2153537	9 817484	2753	10 1825158	9 6543156	10 0778938	830	9 921066	42	
19 739787	1921	10 2602173	9 2157760	9 8177595	2753	10 1822405	9 6540924	10 0779768	831	9 920239	41	
20 7399748	1920	10 2600252	9 2161981	9 8180347	2752	10 1819653	9 6538691	10 0780599	831	9 921940	40	
21 7401668	1920	10 2598332	9 2166199	9 8183098	2751	10 1816902	9 6536458	10 0781430	832	9 921857	39	
22 7403587	1919	10 2596413	9 2170416	9 8185849	2751	10 1814151	9 6534225	10 0782262	832	9 921738	38	
23 7405505	1918	10 2594495	9 2174630	9 8188599	2749	10 1811401	9 6531992	10 0783094	833	9 921606	37	
4 740741	1916	10 2592579	9 2178842	9 8191348	2749	10 1808652	9 6529829	10 0783927	833	9 9216073	36	
25 7409337	1916	10 2590663	9 218305	9 8194096	2748	10 1805904	9 6527666	10 0784760	834	9 9215210	35	
6 7411251	1914	10 2588749	9 21875	9 8196844	2748	10 1803156	9 6525503	10 0785594	834	9 9214406	34	
27 7413164	1913	10 2586836	9 2191464	9 8199592	2748	10 1800408	9 6523341	10 0786428	835	9 9213572	33	
8 7415075	1911	10 258495	9 2195668	9 8202330	2746	10 179766	9 6521179	10 0787262	835	9 9212737	32	
29 7416986	1911	10 2583014	9 2199868	9 8205084	2745	10 1794916	9 6519016	10 0788096	836	9 9211902	31	
30 7418895	1909	10 2581105	9 2204067	9 8207829	2745	10 1792171	9 6516853	10 0788930	837	9 9211066	30	
31 7420803	1908	10 2579197	9 2208263	9 8210574	2745	10 1789426	9 6514690	10 0789764	836	9 9210230	29	
32 7422710	1907	10 2577290	9 2212458	9 8213317	2743	10 1786683	9 6512527	10 0790598	838	9 9209393	28	
33 7424616	1906	10 2575384	9 2216650	9 8216060	2743	10 1783940	9 6510364	10 0791432	838	9 9208555	27	
34 7426520	1904	10 2573480	9 2220839	9 8218803	2743	10 178119	9 6508201	10 0792266	839	9 9207717	26	
35 7428423	1903	10 2571575	9 222503	9 8221545	2741	10 1778445	9 6506038	10 0793100	839	9 9206878	25	
36 7430325	1901	10 2569675	9 2229219	9 8224286	2741	10 1775701	9 6503875	10 0793934	839	9 9206039	24	
37 743226	1900	10 2567774	9 2233396	9 8227026	2740	10 1772957	9 6501712	10 0794768	840	9 9205200	23	
38 7434126	1898	10 2565874	9 2237571	9 8229766	2739	10 1770213	9 6499549	10 0795602	841	9 9204360	22	
39 7436024	1897	10 2563976	9 2241753	9 8232505	2739	10 1767469	9 6497386	10 0796436	841	9 9203521	21	
40 7437921	1896	10 2562079	9 2245933	9 8235244	2737	10 1764725	9 6495223	10 0797270	842	9 9202682	20	
41 7439817	1895	10 2560183	9 2250116	9 8237983	2737	10 1761981	9 6493060	10 0798104	842	9 9201843	19	
4 744171	1894	10 2558283	9 2254299	9 8240721	2736	10 1759237	9 6490897	10 0798938	843	9 9200994	18	
43 7443606	189	10 2556394	9 2258449	9 8243455	2736	10 1756493	9 6488734	10 0799772	843	9 9200155	17	
44 7445498	189	10 2554502	9 2262611	9 8246191	2735	10 1753749	9 6486571	10 0800606	844	9 9199308	16	
45 7447390	1890	10 2552610	9 226678	9 8248926	2734	10 1751005	9 6484408	10 0801440	844	9 9198464	15	
46 7449280	1889	10 2550720	9 2270946	9 8251666	2734	10 1748261	9 6482245	10 0802274	844	9 9197619	14	
47 7451169	1888	10 2548831	9 2275110	9 8254404	2733	10 1745517	9 6480082	10 0803108	845	9 9196775	13	
48 7453056	1887	10 2546944	9 2279266	9 8257141	2733	10 1742773	9 6477919	10 0803942	846	9 9195929	12	
49 7454943	1885	10 2545057	9 2283433	9 8259879	2732	10 1740029	9 6475756	10 0804776	847	9 9195083	11	
50 745683	1884	10 2543172	9 2287598	9 8262615	2731	10 1737285	9 6473593	10 0805610	847	9 9194237	10	
51 7458712	1883	10 2541288	9 2291751	9 8265353	2731	10 1734541	9 6471430	10 0806444	848	9 9193390	9	
52 7460595	1882	10 2539405	9 2295905	9 8268091	2730	10 1731797	9 6469267	10 0807278	848	9 9192542	8	
53 7462471	1881	10 2537523	9 2300060	9 8270829	2730	10 1729053	9 6467104	10 0808112	849	9 9191694	7	
54 7464358	1879	10 2535642	9 2304217	9 8273567	2729	10 1726309	9 6464941	10 0808946	850	9 9190845	6	
55 746637	1878	10 2533763	9 2308379	9 8276305	2728	10 1723565	9 6462778	10 0809780	850	9 9190000	5	
56 7468115	1877	10 2531885	9 2312541	9 8279043	2727	10 1720821	9 6460615	10 0810614	851	9 9189155	4	
57 7469992	1876	10 2530008	9 2316703	9 8281781	2727	10 1718077	9 6458452	10 0811448	851	9 9188310	3	
58 7471868	1875	10 2528132	9 2320865	9 8284519	2726	10 1715333	9 6456289	10 0812282	852	9 9187465	2	
59 7473743	184	10 2526257	9 2325027	9 8287257	2726	10 1712589	9 6454126	10 0813116	852	9 9186620	1	
60 7475617		10 2524383	9 2329189	9 8290000		10 1709845	9 6451963	10 0813950		9 9185775		
		Secant	Coverf	Cotang	Diff	Tang	Verfied	Cofec	D	Sine	De	

34 Deg.		NATURAL SINES, &c										Tab 10	
	Sine	Diff	Coverf	Cofec	Tang	Cotang.	Secant	Veri	Diff	Cofine			
0	5591929	2411	4408071	17882916	6745085	14825610	12062179	1709624	1627	8290376	60		
1	5594340	2411	4405660	17875208	6749318	14816311	12064547	1711251	1628	8288749	59		
2	5596751	2411	4403249	17867508	6753553	14807021	12066917	1712879	1628	8287121	58		
3	5599162	2410	4400838	17859817	6757790	14797738	12069288	1714507	1629	8285493	57		
4	5601572	2409	4398428	17852133	6762028	14788463	12071662	1716136	1630	8283864	56		
5	5603981	2409	4396019	17844457	6766268	14779197	12074037	1717766	1631	8282234	55		
6	5606390	2408	4393610	17836790	6770509	14769938	12076415	1719397	1631	8280605	54		
7	5608798	2408	4391202	17829131	6774752	14760688	12078794	1721028	1632	8278972	53		
8	5611206	2408	4388794	17821479	6778997	14751445	12081175	1722660	1632	8277340	52		
9	5613614	2407	4386386	17813836	6783243	14742210	12083559	1724292	1634	8275708	51		
10	5616021	2407	4383979	17806201	6787492	14732983	12085944	1725926	1634	8274074	50		
11	5618428	2406	4381572	17798574	6791741	14723764	12088331	1727560	1634	8272440	49		
12	5620834	2405	4379166	17790955	6795993	14714553	12090720	1729194	1636	8270806	48		
13	5623239	2406	4376761	17783344	6800246	14705350	12093112	1730830	1636	8269170	47		
14	5625645	2404	4374355	17775741	6804501	14696155	12095505	1732466	1637	8267534	46		
15	5628049	2404	4371951	17768146	6808758	14686967	12097900	1734103	1637	8265897	45		
16	5630453	2404	4369547	17760559	6813016	14677788	12100297	1735740	1638	8264260	44		
17	5632857	2403	4367143	17752980	6817276	14668616	12102696	1737378	1639	8262622	43		
18	5635260	2403	4364740	17745409	6821537	14659452	12105097	1739017	1640	8260983	42		
19	5637663	2403	4362337	17737845	6825801	14650296	12107500	1740657	1640	8259343	41		
20	5640066	2401	4359934	17730290	6830066	14641147	12109905	1742297	1641	8257703	40		
21	5642467	2402	4357533	17722743	6834333	14632007	12112312	1743938	1641	8256062	39		
22	5644869	2401	4355131	17715204	6838601	14622874	12114721	1745580	1642	8254420	38		
23	5647270	2400	4352730	17707672	6842871	14613749	12117132	1747222	1642	8252778	37		
24	5649670	2400	4350330	17700149	6847143	14604632	12119545	1748865	1643	8251135	36		
25	5652070	2399	4347930	17692633	6851416	1459552	12121960	1750509	1644	8249491	35		
26	5654469	2399	4345531	17685115	6855692	14586420	12124377	1752153	1645	8247847	34		
27	5656868	2399	4343132	17677625	6859969	14577326	12126795	1753798	1646	8246202	33		
28	5659267	2398	4340733	17670133	6864247	14568240	12129216	1755441	1647	8244556	32		
29	5661665	2397	4338335	17662649	6868528	14559161	12131639	1757091	1647	8242909	31		
30	5664062	2397	4335938	17655173	6872810	14550090	12134064	1758738	1648	824126	30		
31	5666459	2397	4333541	17647704	6877093	14541027	12136491	1760386	1649	8239614	29		
32	5668856	2396	4331144	17640244	6881379	14531971	12138920	1762035	1649	8237965	28		
33	5671252	2396	4328748	17632791	6885666	14522923	12141351	1763684	1650	8236316	27		
34	5673648	2395	4326352	17625345	6889955	14513883	12143784	1765334	1651	8234666	26		
35	5676043	2394	4323957	17617908	6894246	14504850	12146218	1766985	1651	8233015	25		
36	5678437	2395	4321563	17610478	6898538	14495825	12148655	1768636	1652	8231364	24		
37	5680832	2393	4319168	17603057	6902832	14486808	12151094	1770288	1653	8229712	23		
38	5683225	2394	4316775	17595642	6907128	14477798	12153535	1771941	1654	8228059	22		
39	5685619	2392	4314381	17588236	6911425	14468796	12155978	1773595	1654	8226405	21		
40	5688011	2392	4311989	17580837	6915725	14459801	12158423	1775249	1655	8224751	20		
41	5690403	2392	4309597	17573446	6920026	14450814	12160870	1776904	1656	8223096	19		
42	5692795	2392	4307205	17566063	6924328	14441834	12163319	1778560	1656	8221440	18		
43	5695187	2390	4304813	17558687	6928633	14432862	12165770	1780216	1657	8219784	17		
44	5697577	2391	4302423	17551320	6932939	14423897	12168223	1781873	1658	8218127	16		
45	5699968	2389	4300032	17543959	6937247	14414940	12170678	1783531	1658	8216469	15		
46	5702357	2390	4297648	17536607	6941557	14405991	12173135	1785189	1659	8214811	14		
47	5704747	2389	4295253	17529262	6945868	14397049	12175594	1786848	1660	8213152	13		
48	5707136	2388	4292864	17521924	6950181	14388114	12178055	1788508	1660	8211492	12		
49	5709524	2388	4290476	17514595	6954496	14379187	12180518	1790168	1662	8209837	11		
50	5711912	2387	4288088	17507273	6958813	14370268	12182983	1791830	1661	8208170	10		
51	5714299	2387	4285701	17499958	6963131	14361356	12185450	1793491	1663	8206509	9		
52	5716686	2387	4283314	17492651	6967451	14352451	12187919	1795154	1663	8204846	8		
53	5719073	2386	4280927	17485352	6971773	14343554	12190391	1796817	1664	8203183	7		
54	5721459	2385	4278541	17478060	6976097	14334664	12192864	1798481	1665	8201519	6		
55	5723844	2385	4276156	17470776	6980422	14325781	12195339	1800146	1665	8199854	5		
56	5726229	2385	4273771	17463499	6984749	14316906	12197816	1801811	1666	8198189	4		
57	5728614	2384	4271386	17456230	6989078	14308039	12200296	1803477	1667	8196523	3		
58	5730998	2383	4269002	17448969	6993409	14299178	12202777	1805144	1667	8194856	2		
59	5733381	2383	4266619	17441715	6997741	14290326	12205260	1806811	1669	8193189	1		
60	5735764	2383	4264236	17434468	7002075	14281480	12207746	1808480	1669	8191520	0		
Cofine	Diff	Verf	Secant	Cotan.	Tang.	Cofec.	Coverf	Diff	Sine				

	Sine	Diff	Cofec	Verfed	Tang	Diff	Cotang	Coverf	Secant	D	Cofine	
0	9 7475617	1872	10 2524383	9 2329001	9 8280874	2725	10 1710126	9 644 486	10 0814258	85	9 9185 42	6
1	9 7477489	1871	10 2522511	9 2331139	9 8292599	2721	10 1701401	9 6440109	10 0815110	85	9 9184890	59
2	9 7479360	1870	10 2520640	9 2337 67	9 8295323	7 4	10 1 01677	9 645 173	10 0815965	853	9 9181037	58
3	9 7481230	1869	10 2518770	9 2341393	9 8298047	27 2	10 1701953	9 6435354	10 0816817	854	9 9183183	57
4	9 7483099	1868	10 2516901	9 2345518	9 8300769	1 3	10 1699 31	9 6432975	10 0817671	854	9 918 329	56
5	9 7484967	1860	10 2515033	9 2349640	9 8303492	721	10 1696508	9 6430596	10 0818525	8 4	9 9181175	55
6	9 7486833	1865	10 2513161	9 3537611	9 306213	2721	10 1691787	9 64 8215	10 0819380	853	9 9180620	54
7	9 7488698	1865	10 2511302	9 2357879	9 8308934	2721	10 1691066	9 64 5831	10 0820 36	856	9 9179162	53
8	9 7490562	1864	10 2509438	9 2361995	9 8311654	2720	10 1688346	9 64 3452	10 082109	856	9 9178906	5
9	9 7492425	1863	10 2507575	9 2366109	9 8314374	2720	10 168566	9 6421068	10 0821949	857	9 9178051	51
10	9 7494287	186	10 2505713	9 2370 21	9 8317093	2719	10 1682907	9 6118685	10 0822806	851	9 9177194	50
11	9 7496148	1861	10 2503852	9 2374330	9 8319811	2718	10 1680189	9 6416300	10 0823664	858	9 9176336	49
12	9 7498007	1859	10 2501993	9 2378438	9 8322529	717	10 1677471	9 6413914	10 08 4522	858	9 9175478	48
13	9 7499866	1857	10 2500134	9 2382543	9 83 5246	2717	10 1674754	9 6411528	10 0825381	859	9 9174619	47
14	9 7501723	1856	10 498277	9 238664	9 8327963	2716	10 1672037	9 6409141	10 0826240	859	9 9173760	16
15	9 7503579	1855	10 2496421	9 2390748	9 8330619	2715	10 16693 1	9 6406753	10 08 7100	860	9 917 900	45
16	9 7505434	1855	10 2494566	9 394847	9 8333394	2715	10 1666666	9 6404364	10 08 7960	860	9 91 2040	11
17	9 7507287	1853	10 2492713	9 2398944	9 8336109	2714	10 1663301	9 6401974	10 0828821	861	9 9171175	43
18	9 7509140	1851	10 2490860	9 2403038	9 83388 3	2713	10 1661177	9 6399583	10 0829083	862	9 9170317	4
19	9 7510991	1851	10 2489009	9 2407131	9 8341536	11	10 1658464	9 639719	10 0830545	862	9 9169455	41
20	9 751284	1849	10 2487158	9 241122	9 8344 49	2712	10 1655751	9 6394800	10 0831407	862	9 9168593	40
21	9 7514691	1847	10 2485309	9 2415310	9 8346961	2712	10 1653039	9 6392406	10 0832270	863	9 91677 0	37
22	9 7516538	1847	10 2483462	9 2419396	9 8349673	2711	10 1650327	9 6390012	10 0833134	864	9 9166846	36
23	9 7518385	1841	10 2481615	9 2423481	9 8352384	2710	10 1647616	9 6387618	10 0833998	864	9 9166002	37
24	9 7520231	1846	10 2479769	9 427563	9 8355094	710	10 1644906	9 6385222	10 0834863	865	9 9165137	30
25	9 7522075	1844	10 24779 5	9 2431643	9 8357804	2709	10 164 196	9 6382825	10 0835728	865	9 91647 35	
26	9 7523919	1842	10 476081	9 2435721	9 8360513	08	10 1639487	9 6380428	10 0836594	866	9 9163406	34
27	9 7525761	1842	10 2474239	9 2439797	9 8363 1	2708	10 1636779	9 6378030	10 0837461	866	9 9162539	33
28	9 7527602	1841	10 247 398	9 2443871	9 83659 9	2707	10 1634071	9 6375631	10 0838327	866	9 9161673	31
29	9 7529442	1840	10 2470558	9 244794	9 8368636	2707	10 1631364	9 6373231	10 0839195	868	9 9160805	31
30	9 7531280	1838	10 4687 0	9 245201	9 8371343	706	10 16 8657	9 6370830	10 0840063	868	9 9159977	30
31	9 7533118	1836	10 2466882	9 456079	9 8374049	2706	10 1625951	9 6368429	10 0840931	868	9 9159069	29
32	9 7534954	1836	10 2465046	9 2460145	9 8376755	705	10 1623245	9 6366026	10 0841800	879	9 9158200	28
33	9 7536790	1836	10 2463210	9 2464208	9 8379460	2705	10 1620540	9 6363623	10 0842670	870	9 9157330	27
34	9 7538624	1834	10 2461376	9 2468269	9 8382164	2704	10 1617836	9 6361219	10 0843540	870	9 9156460	26
35	9 7540457	1833	10 2459543	9 247 328	9 838486	2703	10 1615133	9 6358814	10 0844411	871	9 9155589	25
36	9 7542288	1831	10 2457712	9 2476385	9 8387571	2704	10 1612429	9 6356408	10 0845282	871	9 9154718	24
37	9 7544119	1830	10 2455881	9 2480440	9 8390273	2702	10 1609727	9 6354001	10 0846154	872	9 9153846	23
38	9 7545949	1830	10 2454051	9 2484493	9 8392975	2 01	10 1607025	9 6351594	10 0847026	872	9 9152974	22
39	9 7547777	18 8	10 2452223	9 2488544	9 8395676	2 01	10 1604324	9 6349185	10 0847899	873	9 9152101	21
40	9 7549604	1827	10 2450396	9 2492593	9 8398377	700	10 1601623	9 6346776	10 0848772	873	9 9151228	20
41	9 7551431	1825	10 2448569	9 2496640	9 8401077	2699	10 1598923	9 6344366	10 0849646	874	9 9150354	19
42	9 555 56	1824	10 2446744	9 2500684	9 8403776	2699	10 1596224	9 6341955	10 0850521	875	9 9149479	18
43	9 7555080	1822	10 2444920	9 2504727	9 8406475	2699	10 1593525	9 6339543	10 0851396	875	9 9148604	17
44	9 7556902	1822	10 2443098	9 2508767	9 8409174	2697	10 1590826	9 6337131	10 0852271	875	9 9147729	16
45	9 7558724	1820	10 2441276	9 2512806	9 8411871	2698	10 1588120	9 6334717	10 0853148	877	9 9146852	15
46	9 7560544	1820	10 2439456	9 2516842	9 8414569	2696	10 1585431	9 6332303	10 0854024	876	9 9145976	14
47	9 7562364	1818	10 437636	9 2520876	9 8417265	2696	10 1582735	9 6329888	10 0854901	877	9 9145099	13
48	9 7564182	1817	10 2435818	9 2524909	9 8419961	2696	10 1580039	9 6327472	10 0855779	878	9 9144221	12
49	9 7565999	1816	10 2434001	9 2528939	9 8422657	2694	10 1577343	9 6325055	10 0856658	879	9 914334	11
50	9 7567815	1815	10 2432185	9 2532967	9 8425351	2695	10 1574649	9 6322637	10 0857536	878	9 9142464	10
51	9 7569630	1814	10 2430370	9 2536993	9 84 8046	2693	10 1571954	9 6320218	10 0858416	880	9 91 1584	9
52	9 7571444	1814	10 2428556	9 2541017	9 8430739	2693	10 1569261	9 631 799	10 0859296	880	9 9140704	8
53	9 7573256	1812	10 2426744	9 2545039	9 8433432	2693	10 1566568	9 6315378	10 0860176	880	9 9139824	7
54	9 7575068	1812	10 2424932	9 2549059	9 8436125	2693	10 1563875	9 6312957	10 0861057	881	9 9138911	6
55	9 7576878	1810	10 242312	9 2553077	9 8438811	2692	10 1561183	9 6310535	10 0861939	882	9 9138061	
56	9 7578687	1809	10 2421313	9 2557093	9 8441508	2691	10 1558492	9 6308112	10 0862821	882	9 9137179	
57	9 7580495	1808	10 2419505	9 2561107	9 8444199	2691	10 1555801	9 6305688	10 0863704	883	9 9136296	
58	9 7582302	1807	10 2417698	9 2565119	9 8446889	2690	10 1553111	9 6303264	10 0864587	883	9 9135413	
59	9 7584108	1806	10 2415892	9 2569128	9 8449579	2690	10 1550421	9 6300838	10 0865470	883	9 9134530	
60	9 7585913	1805	10 2414087	9 2573136	9 8452268	2699	10 1547722	9 6298412	10 0866355	885	9 9133645	
	Cofine	Diff	Secant	Coverf	Cotang	Diff	Tang	Verfed	Cofec	D	Sine	

35 Deg.		NATURAL SINES, &c.							15. 40	
	Sine	Diff	Coverl.	Cofec	Tang	Cotang	Secant	Verl.	Diff	Cofine
0	5735764	2383	4264236	7431468	700.075	4281480	2207746	1808480	1668	81915.0
1	5738147	2383	4261853	7427229	7006411	4272642	2210233	1810148	1670	8189852
2	5740549	2382	4259471	7419997	7010749	4263811	2212723	1811818	1670	8188182
3	5742911	2381	4257089	7412773	7015089	4254988	2215215	1813488	1671	8186512
4	5745292	2380	4254708	7405556	7019430	4246171	2217708	1815159	1672	8184841
5	5747672	2381	4252328	7398347	7023773	4237362	2220204	1816831	1672	8183169
6	5750053	2379	4249947	7391145	7028118	4228561	2222702	1818503	1673	8181497
7	5752432	2379	4247568	7383951	7032461	4219766	2225202	1820170	1673	8179824
8	5754811	2379	4245189	7376764	7036813	4210979	2227703	1821849	1675	8178151
9	5757190	2378	4242810	7369585	7041163	4202200	2230207	1823524	1675	8176476
10	5759568	2378	4240432	7362413	7045515	4193427	2232713	1825199	1676	8174801
11	5761946	2377	4238054	7355248	7049869	4184662	2235222	1826875	1676	8173125
12	5764323	2377	4235677	7348091	7054224	4175904	2237732	1828551	1677	8171449
13	5766700	2376	4233300	7340941	7058581	4167153	2240244	1830228	1678	8169772
14	5769076	2376	4230924	7333798	7062940	4158409	2242758	1831906	1678	8168094
15	5771452	2375	4228548	7326663	7067301	4149673	2245274	1833584	1680	8166416
16	5773827	2375	4226173	7319535	7071664	4140943	2247793	1835264	1680	8164736
17	5776202	2374	4223798	7312414	7076028	4132221	2250313	1836944	1680	8163056
18	5778576	2374	4221424	7305301	7080395	4123506	2252836	1838624	1681	8161376
19	5780950	2373	4219050	7298195	7084763	4114799	2255361	1840305	1682	8159695
20	5783323	2373	4216677	7291096	7089133	4106098	2257887	1841987	1682	8158013
21	5785696	2373	4214304	7284005	7093504	4097405	2260416	1843670	1683	8156330
22	5788069	2371	4211931	7276921	7097878	4088718	2262947	1845353	1684	8154647
23	5790440	2372	4209560	7269844	7102253	4080039	2265480	1847037	1685	8152963
24	5792812	2371	4207188	7262774	7106630	4071367	2268015	1848722	1685	8151278
25	5795183	2370	4204817	7255712	7111009	4062702	2270552	1850407	1687	8149593
26	5797553	2370	4202447	7248657	7115390	4054044	2273091	1852094	1686	8147906
27	5799923	2369	4200077	7241609	7119772	4045393	2275633	1853780	1688	8146220
28	5802292	2369	4197708	7234568	7124157	4036749	2278176	1855468	1688	8144532
29	5804661	2369	4195339	7227534	7128543	4028113	2280722	1857156	1689	8142844
30	5807030	2367	4192970	7220508	7132931	4019483	2283269	1858845	1689	8141155
31	5809397	2368	4190603	7213489	7137320	4010860	2285819	1860534	1691	8139466
32	5811765	2367	4188235	7206477	7141712	4002245	2288371	1862225	1691	8137775
33	5814132	2366	4185868	7199472	7146106	3993636	2290924	1863916	1691	8136084
34	5816498	2366	4183502	7192475	7150501	3985034	2293480	1865607	1691	8134393
35	5818864	2366	4181136	7185484	7154898	3976440	2296039	1867299	1692	8132701
36	5821230	2365	4178770	7178501	7159297	3967852	2298599	1868992	1694	8131008
37	5823595	2364	4176405	7171525	7163698	3959272	2301161	1870686	1694	8129314
38	5825959	2364	4174041	7164556	7168100	3950698	2303725	1872380	1695	8127620
39	5828323	2364	4171677	7157594	7172505	3942131	2306292	1874075	1696	8125925
40	5830687	2363	4169313	7150639	7176911	3933571	2308861	1875771	1697	8124229
41	5833050	2362	4166950	7143691	7181319	3925019	2311432	1877468	1697	8122532
42	5835412	2362	4164588	7136750	7185729	3916473	2314004	1879165	1698	8120835
43	5837774	2362	4162226	7129817	7190141	3907934	2316579	1880863	1698	8119137
44	5840136	2361	4159864	7122890	7194554	3899401	2319156	1882561	1699	8117439
45	5842497	2360	4157503	7115970	7198970	3890876	2321736	1884260	1700	8115740
46	5844857	2360	4155143	7109058	7203387	3882358	2324317	1885960	1701	8114040
47	5847217	2360	4152783	7102152	7207806	3873847	2326900	1887661	1701	8112339
48	5849577	2359	4150423	7095254	7212227	3865342	2329486	1889362	1702	8110635
49	5851936	2358	4148064	7088362	7216650	3856841	2332074	1891064	1702	8108930
50	5854294	2358	4145706	7081478	7221075	3848353	2334664	1892766	1704	8107234
51	5856652	2358	4143348	7074601	7225502	3839869	2337256	1894470	1704	8105530
52	5859010	2357	4140990	7067730	7229930	3831392	2339850	1896174	1704	8103826
53	5861367	2357	4138633	7060867	7234361	3822922	2342446	1897878	1706	8102122
54	5863724	2356	4136276	7054010	7238793	3814458	2345044	1899584	1706	8100416
55	5866080	2355	4133920	7047160	7243227	3806001	2347645	1901290	1706	8098710
56	5868435	2355	4131565	7040318	7247663	3797551	2350248	1902996	1708	8097004
57	5870790	2355	4129210	7033482	7252101	3789108	2352852	1904704	1708	8095296
58	5873145	2354	4126855	7026653	7256540	3780672	2355459	1906412	1709	8093588
59	5875499	2354	4124501	7019831	7260982	3772242	2358069	1908121	1709	8091879
60	5877853		4122147	7013016	7265425	3763819	2360680	1909830		8090170
	Cofine	Diff	Verl	Secant	Cotan	Tang	Cofec.	Coverl.	Diff	Sine

Loc SINES, &c														(319)
15 Deg														
Sine	Diff	Cofec	Verfedf	Lang	Diff	Cotang	Coverf	Secant	D	Cotang	Coverf	Secant	D	Sine
0	9 7585913	1804	10 2411087	9 2573136	9 8152268	688	10 151773	9 629841	10 0866355	085	9 1133115	60		0
1	9 7587717	1802	10 2411283	9 2577142	9 8454956	2688	10 1545044	9 6295985	10 0867240	805	9 1132760	59		1
2	9 7589519	1802	10 2410181	9 2581145	9 8457614	2688	10 1542356	9 6293557	10 0868125	806	9 1131875	58		2
3	9 7591321	1800	10 2408679	9 2585147	9 8460332	2686	10 1539668	9 6291128	10 0869011	807	9 1130989	57		3
4	9 7593121	1799	10 2406879	9 2589147	9 8463018	2687	10 1536982	9 6288698	10 0869895	887	9 113011	56		4
5	9 7594920	1798	10 2405080	9 2593144	9 8465705	2685	10 1534295	9 628626	10 08 0785	887	9 11 9215	55		5
6	9 7596718	1797	10 2403282	9 2597140	9 8468390	2685	10 1531610	9 6283836	10 08 167	088	9 11253	54		6
7	9 7598515	1796	10 2401485	9 2601133	9 8471075	2685	10 15289	9 6281103	10 087 560	89	9 1127110	53		7
8	9 7600311	1795	10 2399689	9 2605125	9 8473760	2684	10 1526 40	9 6278970	10 0873149	88	9 1126551	52		8
9	9 7602106	1793	10 2397894	9 2609114	9 8476444	2683	10 1523556	9 6276536	10 0874338	890	9 11 50	51		9
10	9 7603899	1793	10 2396101	9 61310	9 8479127	2683	10 1520873	9 6274101	10 0875 28	890	9 11 17, 2	50		10
11	9 760569	1791	10 2394308	9 2617087	9 8481810	2682	10 1518190	9 6271665	10 08 6118	891	9 112368	49		11
12	9 7607483	1791	10 2392517	9 26 1071	9 8484492	2682	10 1515508	9 6269228	10 0877009	892	9 112 991	48		12
13	9 7609274	1789	10 2390726	9 26 505	9 8487171	2681	10 1512826	9 6266791	10 0877901	892	9 112209	47		13
14	9 7611063	1788	10 2388937	9 629032	9 8489855	2681	10 1510145	9 6264352	10 0878793	892	9 1121207	46		14
15	9 7612851	1787	10 2387149	9 2633009	9 8492536	2680	10 1507464	9 6261913	10 0879685	893	9 11 0315	45		15
16	9 7614638	1786	10 2385362	9 2636985	9 8495216	2680	10 1504784	9 6259473	10 0880578	894	9 11191	44		16
17	9 7616424	1784	10 2383576	9 2640958	9 8497896	2679	10 150 104	9 6257031	10 0881472	894	9 1115 8	43		17
18	9 7618208	1784	10 2381792	9 2644929	9 8500575	678	10 14994 5	9 6254589	10 0882366	895	9 1116739	42		18
19	9 7619992	1783	10 2380008	9 2648899	9 8503253	2678	10 149647	9 6252147	10 0883261	895	9 1116739	41		19
20	9 7621775	1781	10 2378225	9 2652866	9 8505931	2677	10 1494069	9 6249703	10 0884156	896	9 1115811	40		20
21	9 7623556	1781	10 2376444	9 2656832	9 8508608	677	10 149139	9 6247258	10 088505	897	9 1114918	39		21
22	9 7625337	1779	10 2374663	9 2660795	9 8511285	2676	10 1488715	9 6244813	10 0885949	897	9 1114051	38		22
23	9 7627116	1778	10 2372884	9 2664757	9 8513961	2676	10 1486739	9 6242367	10 0886845	898	9 1113155	37		23
24	9 7628891	1777	10 2371106	9 2668716	9 8516637	675	10 148336	9 6239919	10 0887 43	898	9 111 37	36		24
25	9 7630671	1776	10 2369329	9 2672674	9 851931	2675	10 1480688	9 6237471	10 0888641	899	9 1111359	35		25
26	9 7632447	1775	10 2367553	9 2676629	9 852198	2674	10 1478013	9 6235022	10 0889540	899	9 1110160	34		26
27	9 7634222	1774	10 2365778	9 2680583	9 8524661	2674	10 1475339	9 6232573	10 0890439	900	9 1109561	33		27
28	9 7635996	1773	10 2364004	9 2684531	9 8527335	2673	10 147 665	9 6230122	10 0891339	900	9 1108661	32		28
29	9 7637769	1771	10 2362 31	9 2688484	9 8530008	2672	10 1469992	9 6227670	10 089 39	901	9 1107761	31		29
30	9 7639540	1771	10 2360460	9 69 431	9 8532680	2672	10 14673 09	9 6225218	10 0893140	901	9 1106860	30		30
31	9 7641311	1769	10 2358689	9 696377	9 8535352	2671	10 1464648	9 6222765	10 0894041	902	9 1105950	29		31
32	9 7643080	1769	10 2356920	9 2700321	9 8538023	671	10 1461977	9 6220311	10 0894943	902	9 1105051	28		32
33	9 7644819	1767	10 2355151	9 270426	9 8540694	2671	10 1459306	9 6217855	10 0895845	903	9 1104155	27		33
34	9 7646616	1766	10 2353384	9 2718 02	9 8543365	2669	10 1456635	9 6215400	10 0896749	903	9 1103 51	26		34
35	9 7648382	1765	10 2351618	9 2712140	9 8546031	670	10 1453966	9 6212943	10 089765	904	9 1102348	25		35
36	9 7650147	1764	10 2349853	9 2716075	9 8548704	2668	10 1451296	9 6210485	10 0898556	905	9 11014 14	24		36
37	9 7651911	1763	10 2348089	9 2720009	9 8551372	669	10 1448626	9 6208026	10 0899461	905	9 1100539	23		37
38	9 7653674	1762	10 2346326	9 2723941	9 8554041	2667	10 1445959	9 6205567	10 0900366	906	9 1099631	22		38
39	9 7655436	1761	10 2344564	9 2727871	9 8556708	2668	10 144329	9 6203107	10 0901272	907	9 10987 8	21		39
40	9 7657197	1760	10 2342803	9 731799	9 8559376	2666	10 1440624	9 6200645	10 0902179	906	9 1097821	20		40
41	9 7658957	1758	10 2341043	9 2735725	9 8562042	2666	10 1437958	9 6198183	10 0903085	908	9 1096915	19		41
42	9 7660715	1758	10 2339 85	9 2739649	9 8564708	2666	10 1435292	9 61957 2	10 0903993	908	9 1096007	18		42
43	9 7662473	1756	10 23375 7	9 2743571	9 8567374	2665	10 14326 6	9 6193256	10 0904901	909	9 1095099	17		43
44	9 7664229	1756	10 2335771	9 2747491	9 8570039	2665	10 14 9961	9 6190792	10 0905810	909	9 1094190	16		44
45	9 7665985	1754	10 2334015	9 751409	9 8572704	2664	10 14 7296	9 6188326	10 0906719	910	9 1093 61	15		45
46	9 7667739	1753	10 2332 61	9 755325	9 8575368	2663	10 142 163	9 6185860	10 0907629	910	9 1092371	14		46
47	9 7669492	1752	10 2330508	9 759239	9 8578031	663	10 1421969	9 6183392	10 0908539	911	9 1091461	13		47
48	9 7671244	1752	10 2328756	9 2763151	9 8580694	2663	10 1419306	9 6180921	10 0909450	911	9 1090550	12		48
49	9 7672996	1750	10 2327004	9 76706	9 8583357	2662	10 1416643	9 6178455	10 0910361	912	9 1089639	11		49
50	9 7674746	1748	10 2325254	9 2770970	9 8586019	2661	10 1413981	9 6175985	10 0911273	913	9 1088727	10		50
51	9 7676494	1748	10 2323506	9 2774876	9 8588680	2661	10 1411320	9 6173514	10 0912186	913	9 1087814	9		51
52	9 7678242	1747	10 2321758	9 2778781	9 8591341	2661	10 1408659	9 6171042	10 0913099	913	9 1086901	8		52
53	9 7679989	1746	10 2320011	9 2782683	9 8594002	659	10 1405998	9 6168569	10 0914012	915	9 1085988	7		53
54	9 7681735	1745	10 2318265	9 2786584	9 8596661	2660	10 1403339	9 6166096	10 09149 7	914	9 1085073	6		54
55	9 7683480	1743	10 2316520	9 2790483	9 8599321	2659	10 1400679	9 6163621	10 0915841	916	9 1084159	5		55
56	9 768523	1743	10 2314777	9 2794380	9 8601980	658	10 1398020	9 6161146	10 0916757	916	9 1083243	4		56
57	9 7686966	1741	10 2313034	9 2798274	9 8604638	2658	10 1395362	9 6158669	10 0917673	916	9 1082327	3		57
58	9 7688707	1741	10 2311293	9 2802167	9 8607296	2658	10 1392704	9 6156192	10 0918589	917	9 1081411	2		58
59	9 7690448	1739	10 2309552	9 2806058	9 8609954	2656	10 1390046	9 6153714	10 0919506	918	9 1080494	1		59
60	9 7692187		10 2307813	9 2809947	9 8612610		10 1387390	9 6151235	10 0920424		9 1079576			60
Cofine	Diff	Secant	Coverf	Cotang	Diff	Lang								

Deg

36 Deg.		NATURAL SINES, &c								Tab. 18	
	Sine	Diff	Coverl	Cofec	Tang	Cotang.	Secant	Verf.	Diff	Cofine	
0	5877853	2353	4122147	17013016	7265425	13763819	1360680	1909830	1710	8090170	60
1	5880206	2352	4119794	17006208	7269871	13755403	1236293	1911540	1711	8088460	59
2	5882558	2352	4117441	16999407	7274318	13746994	12365909	1913251	1712	8086749	58
3	5884910	2352	4115090	16992612	7278767	13738591	12368526	1914963	1712	8085037	57
4	5887262	2351	4112738	16985825	7283218	13730195	12371146	1916675	1713	8083325	56
5	5889613	2351	4110387	16979044	7287671	13721806	12373768	1918388	1713	8081612	55
6	5891964	2350	4108036	16972271	7292125	13713423	12376393	1920101	1714	8079900	54
7	5894314	2349	4105686	16965504	7296582	13705047	12379019	1921815	1715	8078185	53
8	5896663	2349	4103337	16958744	7301041	13696678	12381647	1923530	1716	8076470	52
9	5899012	2349	4100988	16951990	7305501	13688315	12384278	1925246	1716	8074754	51
10	5901361	2348	4098639	16945244	7309963	13679959	12386911	1926962	1717	8073038	50
11	5903709	2348	4096291	16938504	7314428	13671610	12389546	1928679	1718	8071321	49
12	5906057	2347	4093943	16931771	7318894	13663267	12392183	1930397	1718	8069603	48
13	5908404	2346	4091596	16925043	7323362	13654931	12394823	1932115	1719	8067885	47
14	5910750	2346	4089250	16918326	7327831	13646602	12397464	1933834	1720	8066166	46
15	5913096	2346	4086904	16911613	7332303	13638279	12400108	1935554	1720	8064446	45
16	5915442	2345	4084558	16904907	7336777	13629963	12402754	1937274	1721	8062726	44
17	5917787	2345	4082213	16898208	7341253	13621653	12405402	1938995	1722	8061005	43
18	5920132	2344	4079868	16891516	7345730	13613350	12408052	1940717	1723	8059283	42
19	5922476	2343	4077524	16884830	7350210	13605054	12410704	1942440	1723	8057560	41
20	5924819	2343	4075181	16878151	7354691	13596764	12413359	1944163	1724	8055837	40
21	5927163	2342	4072837	16871479	7359174	13588481	12416016	1945887	1724	8054113	39
22	5929505	2342	4070495	16864814	7363660	13580204	12418675	1947611	1725	8052389	38
23	5931847	2342	4068153	16858155	7368147	13571934	12421336	1949336	1726	8050664	37
24	5934189	2341	4065811	16851503	7372636	13563670	12423999	1951062	1727	8048938	36
25	5936530	2341	4063470	16844857	7377127	13555413	12426665	1952789	1727	8047211	35
26	5938871	2340	4061129	16838219	7381620	13547162	12429333	1954516	1728	8045484	34
27	5941211	2339	4058789	16831586	7386115	13538918	12432003	1956244	1728	8043756	33
28	5943550	2339	4056450	16824961	7390611	13530680	12434675	1957972	1729	8042028	32
29	5945889	2339	4054111	16818344	7395110	13522449	12437349	1959701	1730	8040300	31
30	5948228	2338	4051772	16811730	7399611	13514224	12440026	1961431	1731	8038569	30
31	5950566	2338	4049434	16805144	7404113	13506006	12442704	1963162	1731	8036838	29
32	5952904	2337	4047096	16798525	7408618	13497794	12445385	1964893	1732	8035107	28
33	5955241	2337	4044759	16791933	7413124	13489589	12448069	1966625	1733	8033375	27
34	5957577	2336	4042423	16785347	7417633	13481390	12450754	1968358	1733	8031642	26
35	5959913	2336	4040087	16778768	7422143	13473198	12453442	1970091	1734	8029909	25
36	5962249	2335	4037751	16772195	7426655	13465011	12456131	1971825	1735	8028175	24
37	5964584	2334	4035416	16765629	7431170	13456831	12458823	1973560	1735	8026440	23
38	5966918	2334	4033082	16759070	7435686	13448658	12461518	1975295	1736	8024705	22
39	5969252	2334	4030748	16752517	7440204	13440491	12464214	1977031	1737	8022969	21
40	5971586	2333	4028414	16745970	7444744	13432331	12466913	1978768	1737	8021232	20
41	5973919	2332	4026081	16739430	7449246	13424177	12469614	1980505	1738	8019495	19
42	5976251	2332	4023749	16732897	7453770	13416029	12472317	1982244	1738	8017756	18
43	5978583	2332	4021417	16726370	7458296	13407888	12475022	1983982	1740	8016018	17
44	5980915	2331	4019085	16719850	7462824	13399753	12477730	1985722	1740	8014278	16
45	5983246	2331	4016754	16713336	7467354	13391624	12480440	1987462	1741	8012538	15
46	5985577	2329	4014423	16706828	7471886	13383502	12483152	1989203	1741	8010797	14
47	5987906	2330	4012094	16700328	7476420	13375386	12485866	1990944	1742	8009056	13
48	5990236	2329	4009764	16693833	7480956	13367276	12488583	1992686	1743	8007314	12
49	5992565	2328	4007435	16687345	7485494	13359172	12491302	1994429	1744	8005571	11
50	5994893	2328	4005107	16680864	7490033	13351075	12494023	1996173	1744	8003827	10
51	5997221	2328	4002779	16674389	7494575	13342984	12496746	1997917	1745	8002083	9
52	5999549	2327	4000451	16667920	7499119	13334900	12499471	1999661	1745	8000338	8
53	6001876	2326	3998124	16661458	7503665	13326822	12502199	2001407	1746	7998593	7
54	6004202	2326	3995798	16655002	7508212	13318750	12504929	2003153	1747	7996847	6
55	6006528	2326	3993472	16648553	7512761	13310684	12507661	2004900	1748	7995100	5
56	6008854	2325	3991146	16642110	7517314	13302624	12510396	2006648	1748	7993352	4
57	6011179	2324	3988821	16635673	7521867	13294571	12513133	2008396	1749	7991604	3
58	6013503	2324	3986497	16629243	7526423	13286524	12515872	2010145	1750	7989855	2
59	6015827	2323	3984173	16622819	7530981	13278483	12518613	2011895	1750	7988105	1
60	6018150		3981850	16616401	7535541	13270448	12521357	2013645		7986355	0
	Cofine	Diff	Verf.	Secant	Cotan	Tang	Cofec.	Coverl	Diff	Sine	

	Sine	Diff	Cofec	Verfedf	Tang	Diff	Cotang	Coverf	Secant	D	Cofine	
0	97692187	1738	102301813	92809947	98612610	2657	101387390	96151235	100920424	918	99079576	60
1	97693925	1737	102306075	92813834	98615267	2656	101384733	96148755	100921342	918	99078658	59
2	9769566	1736	102304338	92817720	98617923	2655	101382077	9614675	10092260	920	99077740	58
3	97697398	1735	10230260	92821603	98620578	2655	101379422	96143793	100923180	921	99076820	57
4	97699134	1736	102300866	92825484	98623233	651	101376767	96141311	100924099	921	99075901	56
5	97700868	1734	10229913	92829364	98625887	2654	101374113	96138827	100925020	921	99074980	55
6	97702601	1733	102297399	9283311	98628541	2654	101371459	96136343	100925941	921	99074059	54
7	97704332	1731	102295668	92837117	98631195	2653	101368805	96133858	100926862	922	99073134	
8	97706063	1730	102293937	92840990	98633848	2652	101366152	96131372	100927784	923	99072211	
9	97707793	1729	102292207	9284486	98636500	2652	101363500	96128885	100928707	923	99071286	
10	97709522	1727	102290478	92848732	98639152	651	101360848	96126397	100929630	924	99070361	
11	97711251	1727	102288751	92852600	98641803	2651	10135819	96123908	100930554	924	99069436	
12	97712976	1726	102287024	92856461	98644454	2651	101355546	96121418	100931478	925	99068511	
13	9771470	1724	102285298	92860330	98647105	2650	101352895	9611898	100932403	926	99067586	
14	97716426	1724	102283574	92864192	98649755	2649	101350245	96116436	100933327	926	99066661	
15	97718150	1724	102281850	92868053	98652404	649	101347596	96113944	100934255	926	99065736	
16	97719872	1721	102280120	92871911	98655053	2649	101344947	96111451	100935181	927	99064811	
17	97721593	1721	102278407	92875768	98657702	2648	101342298	96108956	100936108	928	99063886	
18	97723314	1719	102276686	9287962	98660350	2647	101339650	96106461	100937036	928	99062961	
19	97725033	1718	102274967	92883475	98662997	2647	101337003	96103965	100937964	929	99062036	
20	97726751	1717	102273249	9288736	98665644	2647	101334356	96101469	100938893	930	99061111	
21	97728468	1717	102271532	92891175	98668291	2646	101331709	96098971	100939823	930	99060186	
22	97730185	1715	102269815	92895022	98670937	2646	101329063	96096472	100940753	930	99059261	
23	97731900	1714	102268100	92898867	98673583	2645	101326417	96093972	100941683	931	99058336	
24	97733614	1713	102266386	92902711	9867628	645	101323772	96091472	100942614	932	99057411	
25	97735327	1712	102264673	9290655	98678873	2644	101321127	96088971	100943546	932	99056486	
26	97737039	1710	102262961	92910392	98681517	643	101318483	96086468	100944478	933	99055561	
27	97738749	1710	102261251	92914229	98684160	2644	101315840	96083965	100945411	933	99054636	
28	97740459	1709	102259541	92918065	98686804	2642	101313196	96081461	100946344	934	99053711	
29	97742168	1708	102257832	92921899	98689446	2643	101310554	96078956	100947278	935	99052786	
30	97743876	1707	102256121	92925731	98692089	2642	101307911	96076450	100948213	935	99051861	
31	97745583	1705	102254417	92929561	98694731	2641	101305269	96073943	100949148	936	99050936	
32	97747288	1705	102252712	92933390	98697372	2641	101302628	96071436	100950084	936	99050011	
33	97748993	1704	102251007	92937216	98700013	2640	101300087	96068927	100951020	937	99049086	
34	97750697	1702	102249303	92941041	98702653	2640	101297447	96066417	100951957	937	99048161	
35	97752399	1702	102247601	92944863	98705293	2640	101294807	96063907	100952894	938	99047236	
36	97754101	1700	102245899	92948684	98707933	2639	101292167	96061396	100953832	938	99046311	
37	97755801	1700	102244199	92952503	98710572	2638	101289528	96058883	100954770	939	99045386	
38	97757501	1698	102242499	92956320	98713210	2638	101286889	96056370	100955709	940	99044461	
39	97759199	1698	102240801	92960136	98715848	2638	101284252	96053856	100956649	940	99043536	
40	97760897	1696	102239103	92963949	98718486	2637	101281614	96051341	100957589	941	99042611	
41	97762593	1696	102237407	92967760	98721123	2637	101278977	96048825	100958530	941	99041686	
42	97764289	1694	102235711	92971570	98723760	2636	101276340	96046308	100959471	942	99040761	
43	97765983	1693	102234017	92975378	98726396	2636	101273704	96043791	100960413	943	99039836	
44	97767676	1693	102232324	92979184	98729032	2636	101271068	96041272	100961356	943	99038911	
45	97769369	1691	102230631	92982988	98731668	2634	101268432	96038752	100962299	944	99037986	
46	97771060	1690	102228940	92986790	98734302	2635	101265798	96036232	100963243	944	99037061	
47	97772750	1689	102227250	92990591	98736937	2634	101263163	96033710	100964187	945	99036136	
48	97774439	1689	102225561	92994389	98739571	2633	101260529	96031188	100965132	945	99035211	
49	97776128	1687	102223872	92998186	98742204	2634	101257896	96028665	100966077	946	99034286	
50	97777815	1686	102222185	93001981	98744838	2632	101255262	96026141	100967023	946	99033361	
51	97779501	1685	102220499	93005774	98747470	2632	101252630	96023616	100967969	947	99032436	
52	97781186	1684	102218814	93009565	98750102	2632	101249998	96021090	100968916	948	99031511	
53	97782870	1683	102217130	93013355	98752734	2631	101247366	96018563	100969864	948	99030586	
54	97784553	1682	102215447	93017142	98755365	2631	101244735	96016035	100970812	949	99029661	
55	97786235	1681	102213765	93020928	98757996	2631	101242104	96013506	100971761	950	99028736	
56	97787916	1680	102212084	93024712	98760627	2630	101239473	96010977	100972711	950	99027811	
57	97789596	1679	102210404	93028494	98763257	2629	101236843	96008446	100973661	950	99026886	
58	97791275	1678	102208725	93032274	98765886	2629	101234211	96005914	100974611	951	99025961	
59	97792953	1677	102207047	93036052	98768515	2629	101231585	96003382	100975562	951	99025036	
60	97794630	1677	102205370	93039829	98771144	2629	101228956	96000849	100976514	952	99024111	
	Cofine	Diff	Secant	Coverf	Cotang	Diff	Tang	Verfedf	Cofec	D	S	

	Sine	Diff	Coverf	Cofec	Tang.	Cotang.	Secant	Veil.	Diff	Cotang.	
0	6018150	2323	3981850	1 6616401	7535541	1 3270448	1 2521357	2012645	1751	7986355	60
1	6020473	2322	3979527	1 6609990	7540102	1 3262420	1 2524102	2015396	1751	7984604	59
2	6022795	2322	3977205	1 6603586	7544666	1 3254397	1 2526850	2017147	1753	7982853	58
3	6025117	2322	3974883	1 6597187	7549232	1 3246381	1 2529601	2018900	1753	7981100	57
4	6027439	2321	3972561	1 6590795	7553799	1 3238372	1 2532353	2020653	1753	7979347	56
5	6029760	2320	3970240	1 6584409	7558369	1 3230368	1 2535108	2022406	1755	7977594	55
6	6032080	2320	3967920	1 6578030	7562941	1 3222370	1 2537865	2024161	1755	7975839	54
7	6034400	2319	3965600	1 6571657	7567514	1 3214379	1 2540625	2025916	1755	7974084	53
8	6036719	2319	3963281	1 6565290	7572090	1 3206393	1 2543387	2027671	1757	7972329	52
9	6039038	2318	3960962	1 6558929	7576668	1 3198414	1 2546151	2029428	1757	7970572	51
10	6041356	2318	3958644	1 6552575	7581248	1 3190441	1 2548917	2031185	1757	7968815	50
11	6043674	2317	3956326	1 6546227	7585829	1 3182474	1 2551685	2032942	1759	7967058	49
12	6045991	2317	3954009	1 6539885	7590413	1 3174513	1 2554456	2034701	1759	7965299	48
13	6048308	2316	3951692	1 6533550	7594999	1 3166559	1 2557229	2036460	1760	7963540	47
14	6050624	2316	3949376	1 6527221	7599587	1 3158610	1 2560005	2038220	1760	7961780	46
15	6052940	2315	3947060	1 6520898	7604177	1 3150668	1 2562782	2039980	1761	7960020	45
16	6055255	2315	3944745	1 6514581	7608769	1 3142731	1 2565562	2041741	1762	7958259	44
17	6057570	2314	3942430	1 6508270	7613363	1 3134801	1 2568345	2043503	1762	7956497	43
18	6059884	2314	3940116	1 6501966	7617959	1 3126876	1 2571129	2045265	1763	7954735	42
19	6062198	2313	3937802	1 6495668	7622557	1 3118958	1 2573916	2047028	1764	7952972	41
20	6064511	2313	3935489	1 6489376	7627157	1 3111046	1 2576705	2048792	1764	7951208	40
21	6066824	2313	3933176	1 6483090	7631759	1 3103140	1 2579497	2050556	1766	7949444	39
22	6069136	2312	3930864	1 6476811	7636363	1 3095239	1 2582291	2052322	1765	7947678	38
23	6071447	2311	3928553	1 6470537	7640969	1 3087345	1 2585087	2054087	1767	7945913	37
24	6073758	2311	3926242	1 6464270	7645577	1 3079457	1 2587885	2055854	1767	7944146	36
25	6076069	2310	3923931	1 6458009	7650188	1 3071575	1 2590686	2057621	1768	7942379	35
26	6078379	2310	3921621	1 6451754	7654800	1 3063699	1 2593489	2059389	1768	7940611	34
27	6080689	2309	3919311	1 6445506	7659414	1 3055828	1 2596294	2061157	1769	7938843	33
28	6082998	2308	3917002	1 6439263	7664031	1 3047964	1 2599102	2062926	1770	7937074	32
29	6085306	2308	3914694	1 6433027	7668649	1 3040106	1 2601912	2064696	1771	7935304	31
30	6087614	2308	3912386	1 6426796	7673270	1 3032254	1 2604724	2066467	1771	7933533	30
31	6089922	2307	3910078	1 6420572	7677893	1 3024407	1 2607539	2068238	1772	7931762	29
32	6092229	2306	3907771	1 6414354	7682517	1 3016567	1 2610356	2070010	1772	7929990	28
33	6094535	2306	3905465	1 6408142	7687144	1 3008733	1 2613175	2071782	1773	7928218	27
34	6096841	2306	3903159	1 6401936	7691773	1 3000904	1 2615997	2073555	1774	7926445	26
35	6099147	2305	3900853	1 6395736	7696404	1 2993081	1 2618820	2075329	1775	7924671	25
36	6101452	2304	3898548	1 6389542	7701037	1 2985265	1 2621647	2077104	1775	7922896	24
37	6103756	2304	3896244	1 6383355	7705672	1 2977454	1 2624475	2078879	1776	7921121	23
38	6106060	2303	3893940	1 6377173	7710309	1 2969649	1 2627306	2080655	1776	7919345	22
39	6108363	2303	3891637	1 6370997	7714948	1 2961850	1 2630140	2082431	1777	7917569	21
40	6110666	2303	3889334	1 6364828	7719589	1 2954057	1 2632975	2084208	1778	7915792	20
41	6112969	2303	3887031	1 6358664	7724233	1 2946270	1 2635813	2085986	1779	7914014	19
42	6115270	2302	3884730	1 6352507	7728878	1 2938488	1 2638653	2087765	1779	7912235	18
43	6117572	2301	3882428	1 6346355	7733526	1 2930713	1 2641496	2089544	1780	7910456	17
44	6119873	2300	3880127	1 6340210	7738176	1 2922943	1 2644341	2091324	1780	7908676	16
45	6122173	2300	3877827	1 6334070	7742827	1 2915179	1 2647188	2093104	1781	7906896	15
46	6124473	2299	3875527	1 6327937	7747481	1 2907421	1 2650038	2094885	1782	7905115	14
47	6126772	2299	3873228	1 6321809	7752137	1 2899669	1 2652890	2096667	1783	7903333	13
48	6129071	2298	3870929	1 6315688	7756795	1 2891922	1 2655745	2098450	1783	7901550	12
49	6131369	2297	3868631	1 6309572	7761455	1 2884182	1 2658601	2100233	1784	7899767	11
50	6133666	2298	3866334	1 6303462	7766118	1 2876447	1 2661460	2102017	1785	7897983	10
51	6135964	2296	3864036	1 6297359	7770782	1 2868718	1 2664322	2103802	1785	7896198	9
52	6138260	2296	3861740	1 6291261	7775448	1 2860995	1 2667186	2105587	1786	7894413	8
53	6140556	2296	3859444	1 6285169	7780117	1 2853277	1 2670052	2107373	1786	7892627	7
54	6142852	2295	3857148	1 6279083	7784788	1 2845566	1 2672921	2109159	1787	7890841	6
55	6145147	2295	3854853	1 6273003	7789460	1 2837860	1 2675792	2110946	1788	7889054	5
56	6147442	2294	3852558	1 6266929	7794135	1 2830160	1 2678665	2112734	1789	7887266	4
57	6149736	2293	3850264	1 6260861	7798812	1 2822465	1 2681541	2114523	1789	7885477	3
58	6152029	2293	3847971	1 6254799	7803492	1 2814776	1 2684419	2116312	1790	7883688	2
59	6154322	2293	3845678	1 6248743	7808173	1 2807094	1 2687299	2118102	1790	7881898	1
60	6156615	2293	3843385	1 6242692	7812856	1 2809416	1 2690182	2119892	1790	7880108	0
	Cotang.	Diff	Verf.	Secant	Cotan.	Tang	Cofec	Coverf	Diff	Sine	

Deg		LOG SINES, &c										(323)
Sine	Diff	Cotec	Verledl	Tang	Diff	Cotang	Coverl	Sec int	D	Coline		
9 7794630	1676	10 2205370	9 3039829	9 8771144	2628	10 1228856	9 6000849	10 0976514	952	9 9023486	60	
9 7796306	1675	10 2203694	9 3043604	9 8773772	2628	10 1226228	9 5998314	10 0977466	953	9 9022534	59	
9 7797981	1674	10 2202019	9 3047376	9 8776400	2627	10 1223600	9 5995779	10 0978419	953	9 9021581	58	
9 7799655	1673	10 2200345	9 3051148	9 8779027	2627	10 1220973	9 5993243	10 0979372	953	9 9020628	57	
9 7801328	1672	10 2198672	9 3054917	9 8781654	2627	10 1218346	9 5990706	10 0980326	954	9 9019674	56	
9 7803000	1671	10 2197000	9 3058684	9 8784281	2627	10 1215719	9 5988168	10 0981281	955	9 9018719	55	
9 7804671	1670	10 2195329	9 3062450	9 8786907	2626	10 1213093	9 5985629	10 0982236	955	9 9017764	54	
9 7806341	1669	10 2193659	9 3066214	9 8789533	26 5	10 1210467	9 5983089	10 0983192	956	9 9016808	53	
9 7808010	1667	10 2191990	9 3069976	9 8792158	26 4	10 1207842	9 5980549	10 0984148	956	9 9015852	52	
9 7809677	1667	10 2190323	9 3073736	9 879478	2625	10 1205218	9 5978007	10 0985105	957	9 9014895	51	
9 7811314	1666	10 2188656	9 3077144	9 8797407	2624	10 1202593	9 5975464	10 0986062	957	9 9013938	50	
9 7813010	1665	10 2186990	9 3081251	9 8800031	2623	10 1199969	9 5972921	10 0987020	958	9 9012980	49	
9 7814675	1664	10 2185325	9 3085006	9 8802654	2623	10 1197346	9 5970376	10 0987979	959	9 9012021	48	
9 7816333	1663	10 2183661	9 3088759	9 8805277	2623	10 1194723	9 5967831	10 0988938	959	9 9011062	47	
9 7818002	1662	10 2181998	9 3092510	9 8807900	2622	10 1192100	9 5965285	10 0989898	960	9 9010102	46	
9 7819664	1660	10 2180336	9 3096259	9 881052	26 2	10 1189478	9 5962737	10 0990858	961	9 9009142	45	
9 7821324	1660	10 2178676	9 3100007	9 8813144	26 1	10 1186856	9 5960189	10 0991819	961	9 9008181	44	
9 7822984	1659	10 2177016	9 3103752	9 8815765	2621	10 1184235	9 5957640	10 0992781	962	9 9007219	43	
9 7824643	1658	10 2175357	9 3107496	9 8818386	2621	10 1181614	9 5955090	10 0993743	963	9 9006257	42	
9 7826301	1657	10 2173699	9 3111238	9 8821007	2620	10 1178993	9 5952533	10 0994706	963	9 9005294	41	
9 7827958	1656	10 2172042	9 3114979	9 8823627	2619	10 1176373	9 5949987	10 0995669	964	9 9004331	40	
9 7829614	1654	10 2170386	9 3118717	9 8826246	2620	10 1173754	9 5947434	10 0996633	964	9 900337	39	
9 7831268	1654	10 2168732	9 3122454	9 8828866	2618	10 1171134	9 5944881	10 0997597	965	9 9002403	38	
9 7832922	1653	10 2167078	9 3126189	9 8831481	2619	10 1168516	9 5942326	10 0998562	965	9 9001438	37	
9 7834575	1652	10 2165425	9 3129922	9 8834103	2618	10 1165897	9 5939770	10 0999528	966	9 9000477	36	
9 7836227	1651	10 2163773	9 3133654	9 8836721	2617	10 1163279	9 5937214	10 1000494	967	9 8999506	35	
9 7837878	1650	10 2162122	9 3137383	9 8839338	2618	10 1160662	9 5934656	10 1001461	967	9 8998539	34	
9 7839528	1649	10 2160472	9 3141111	9 8841956	2616	10 1158044	9 5932098	10 1002428	968	9 8997572	33	
9 7841177	1647	10 2158823	9 3144837	9 8844572	2617	10 1155428	9 5929538	10 1003396	968	9 8996604	32	
9 7842824	1647	10 2157176	9 3148561	9 8847189	2616	10 1152811	9 5926978	10 1004364	969	9 8995636	31	
9 7844471	1646	10 2155529	9 3152284	9 8849805	2615	10 1150195	9 5924417	10 1005333	970	9 8994667	30	
9 7846117	1645	10 2153883	9 3156005	9 8852420	2615	10 1147580	9 5921854	10 1006303	971	9 8993697	29	
9 7847762	1644	10 2152238	9 3159724	9 8855035	2615	10 1144965	9 5919291	10 1007273	971	9 8992727	28	
9 7849406	1643	10 2150594	9 3163441	9 8857650	2614	10 1142350	9 5916727	10 1008244	972	9 8991756	27	
9 7851049	1642	10 2148951	9 3167156	9 8860264	2614	10 1139736	9 5914162	10 1009216	972	9 8990784	26	
9 7852691	1641	10 2147309	9 3170870	9 8862878	2614	10 1137122	9 5911596	10 1010188	972	9 8989812	25	
9 7854332	1640	10 2145668	9 3174582	9 8865492	2613	10 1134508	9 5909029	10 1011160	973	9 8988840	24	
9 7855972	1639	10 2144028	9 3178292	9 8868105	2613	10 1131895	9 5906461	10 1012133	974	9 8987867	23	
9 7857611	1638	10 2142389	9 3182000	9 8870718	2612	10 1129282	9 5903893	10 1013107	974	9 8986893	22	
9 7859249	1637	10 2140751	9 3185706	9 8873330	2612	10 1126670	9 5901323	10 1014081	975	9 8985919	21	
9 7860886	1636	10 2139114	9 3189411	9 8875942	2612	10 1124058	9 5898752	10 1015056	976	9 8984944	20	
9 7862522	1635	10 2137478	9 3193114	9 8878554	2611	10 1121446	9 5896181	10 1016032	976	9 8983968	19	
9 7864157	1634	10 2135843	9 3196815	9 8881165	2610	10 1118835	9 5893608	10 1017008	977	9 8982992	18	
9 7865791	1633	10 2134209	9 3200515	9 8883775	2611	10 1116225	9 5891034	10 1017985	977	9 8982015	17	
9 7867424	1632	10 2132576	9 3204213	9 8886386	2610	10 1113614	9 5888460	10 1018962	978	9 8981038	16	
9 7869056	1631	10 2130941	9 3207909	9 8888996	2609	10 1111004	9 5885885	10 1019940	978	9 8980060	15	
9 7870687	1630	10 2129313	9 3211603	9 8891605	2609	10 1108395	9 5883308	10 1020918	979	9 8979081	14	
9 7872317	1629	10 2127683	9 3215295	9 8894214	2609	10 1105786	9 5880731	10 1021897	980	9 8978102	13	
9 7873946	1628	10 2126054	9 3218986	9 8896823	2609	10 1103177	9 5878153	10 1022877	980	9 8977123	12	
9 7875574	1628	10 2124426	9 3222675	9 8899432	2608	10 1100568	9 5875573	10 1023857	981	9 8976143	11	
9 7877202	1626	10 2122798	9 3226362	9 8902040	2607	10 1097960	9 5872993	10 1024838	981	9 8975162	10	
9 7878828	1625	10 2121172	9 3230048	9 8904647	2607	10 1095353	9 5870412	10 1025819	982	9 8974181	9	
9 7880453	1624	10 2119547	9 3233731	9 8907254	2607	10 1092746	9 5867830	10 1026801	983	9 8973199	8	
9 7882077	1624	10 2117923	9 3237413	9 8909861	2607	10 1090139	9 5865247	10 1027784	983	9 8972216	7	
9 7883701	1622	10 2116299	9 3241094	9 8912468	2606	10 1087532	9 5862663	10 1028767	984	9 8971233	6	
9 7885323	1621	10 2114677	9 3244772	9 8915074	2605	10 1084926	9 5860078	10 1029751	984	9 8970250	5	
						10 1082321	9 5857492	10 1030735	985	9 8969261	4	

38 Deg		NATURAL SINES, &c.								Lib 10	
	Sine	Diff	Coverf	Cotang	Lang	Cotang	Secant	Verf	Diff	Cotang	
0	6156615	2292	3843385	1 6242692	7812856	1 2799416	1 2690182	2119592	1792	7880108	60
1	6158907	2291	3841093	1 6236648	7817542	1 2791745	1 2693067	2121684	1792	7878316	59
2	6161198	2291	3838800	1 6230609	7822229	1 2784079	1 2695955	2123476	1792	7876524	58
3	6163489	2291	3836511	1 6224576	7826919	1 2776419	1 2698845	2125268	1792	7874732	57
4	6165780	2291	3834220	1 6218549	7831611	1 2768765	1 2701737	2127061	1793	7872939	56
5	6168069	2289	3831931	1 6212528	7836305	1 2761116	1 2704632	2128855	1794	7871145	55
6	6170359	2290	3829641	1 6206513	7841002	1 2753473	1 2707529	2130650	1795	7869350	54
7	6172648	2288	3827352	1 6200504	7845700	1 2745835	1 2710429	2132445	1796	7867556	53
8	6174936	2288	3825064	1 6194500	7850400	1 2738204	1 2713331	2134241	1796	7865759	52
9	6177224	2287	3822776	1 6188500	7855103	1 2730578	1 2716235	2136037	1798	7863963	51
10	6179511	2287	3820489	1 6182510	7859808	1 2722957	1 2719142	2137835	1798	7862165	50
11	6181798	2287	3818202	1 6176524	7864515	1 2715342	1 2722052	2139633	1798	7860367	49
12	6184084	2286	3815910	1 6170544	7869224	1 2707733	1 2724963	2141431	1799	7858569	48
13	6186370	2285	3813630	1 6164569	7873935	1 2700130	1 2727877	2143230	1800	7856770	47
14	6188655	2284	3811345	1 6158600	7878649	1 2692532	1 2730794	2145030	1801	7854970	46
15	6190939	2285	3809061	1 6152637	7883364	1 2684940	1 2733712	2146831	1801	7853169	45
16	6193224	2285	3806776	1 6146680	7888082	1 2677353	1 2736634	2148632	1802	7851368	44
17	6195507	2285	3804493	1 6140728	7892802	1 2669772	1 2739557	2150434	1802	7849566	43
18	6197790	2283	3802210	1 6134783	7897524	1 2662196	1 2742484	2152236	1803	7847764	42
19	6200073	2282	3799927	1 6128843	7902248	1 2654626	1 2745412	2154039	1804	7845961	41
20	6202355	2281	3797645	1 6122908	7906975	1 2647062	1 2748343	2155843	1805	7844157	40
21	6204636	2281	3795364	1 6116980	7911703	1 2639503	1 2751276	2157648	1805	7842352	39
22	6206917	2281	3793083	1 6111057	7916434	1 2631950	1 2754212	2159453	1806	7840547	38
23	6209198	2280	3790802	1 6105140	7921167	1 2624402	1 2757151	2161259	1806	7838741	37
24	6211478	2279	3788522	1 6099228	7925902	1 2616860	1 2760091	2163065	1806	7836935	36
25	6213757	2279	3786243	1 6093323	7930640	1 2609323	1 2763034	2164873	1807	7835127	35
26	6216036	2278	3783964	1 6087423	7935379	1 2601792	1 2765980	2166680	1807	7833317	34
27	6218314	2278	3781686	1 6081528	7940121	1 2594267	1 2768928	2168489	1809	7831511	33
28	6220592	2278	3779408	1 6075640	7944865	1 2586747	1 2771878	2170298	1809	7829702	32
29	6222870	2278	3777130	1 6069757	7949611	1 2579232	1 2774831	2172108	1810	7827892	31
30	6225146	2276	3774854	1 6063879	7954359	1 2571723	1 2777787	2173918	1810	7826082	30
31	6227423	2275	3772577	1 6058008	7959110	1 2564219	1 2780744	2175730	1811	7824270	29
32	6229698	2276	3770304	1 6052142	7963862	1 2556721	1 2783705	2177541	1811	7822459	28
33	6231974	2274	3768026	1 6046281	7968617	1 2549229	1 2786667	2179354	1813	7820646	27
34	6234248	2274	3765752	1 6040426	7973374	1 2541742	1 2789632	2181167	1813	7818833	26
35	6236522	2274	3763478	1 6034577	7978134	1 2534260	1 2792600	2182981	1814	7817019	25
36	6238796	2273	3761204	1 6028734	7982895	1 2526784	1 2795570	2184795	1815	7815205	24
37	6241069	2273	3758931	1 6022896	7987659	1 2519313	1 2798543	2186610	1816	7813390	23
38	6243342	2272	3756658	1 6017064	7992425	1 2511848	1 2801518	2188426	1817	7811574	22
39	6245614	2271	3754386	1 6011237	7997193	1 2504388	1 2804495	2190243	1817	7809757	21
40	6247885	2271	3752115	1 6005416	8001963	1 2496933	1 2807475	2192060	1817	7807940	20
41	6250156	2271	3749844	1 5999600	8006736	1 2489454	1 2810457	2193877	1819	7806123	19
42	6252427	2269	3747573	1 5993790	8011511	1 2482040	1 2813442	2195696	1819	7804304	18
43	6254696	2270	3745304	1 5987986	8016288	1 2474602	1 2816430	2197515	1820	7802485	17
44	6256966	2269	3743034	1 5982187	8021067	1 2467169	1 2819419	2199335	1820	7800665	16
45	6259235	2268	3740765	1 5976394	8025849	1 2459742	1 2822412	2201155	1821	7798845	15
46	6261503	2268	3738497	1 5970606	8030632	1 2452320	1 2825407	2202976	1821	7797024	14
47	6263771	2267	3736229	1 5964824	8035418	1 2444903	1 2828404	2204798	1822	7795202	13
48	6266038	2267	3733962	1 5959048	8040206	1 2437492	1 2831404	2206620	1823	7793380	12
49	6268305	2266	3731695	1 5953276	8044997	1 2430086	1 2834406	2208443	1824	7791557	11
50	6270571	2266	3729429	1 5947511	8049790	1 2422685	1 2837411	2210267	1824	7789733	10
51	6272837	2265	3727163	1 5941751	8054584	1 2415290	1 2840418	2212091	1825	7787909	9
52	6275102	2264	3724898	1 5935996	8059382	1 2407900	1 2843428	2213916	1826	7786084	8
53	6277366	2264	3722634	1 5930247	8064181	1 2400515	1 2846440	2215742	1827	7784258	7
54	6279631	2263	3720369	1 5924504	8068983	1 2393136	1 2849455	2217569	1827	7782431	6
55	6281894	2263	3718106	1 5918766	8073787	1 2385762	1 2852472	2219396	1827	7780604	5
56	6284157	2263	3715843	1 5913033	8078593	1 2378393	1 2855492	2221223	1828	7778777	4
57	6286420	2263	3713580	1 5907306	8083401	1 2371030	1 2858514	2223051	1829	7776949	3
58	6288682	2261	3711318	1 5901584	8088212	1 2363672	1 2861539	2224880	1830	7775120	2
59	6290943	2261	3709057	1 5895868	8093025	1 2356319	1 2864566	2226710	1830	7773290	1
60	6293204	2261	3706796	1 5890157	8097840	1 2348972	1 2867596	2228540	1830	7771460	0
	Sine	Diff	Verf	Secant	Cotan.	Tang	Cofec.	Coverf.	Diff	Sine	

8 Deg		LOG SINES, &c.										(325)
Sine	Diff	Cofec	Verfedf	Tang.	Diff	Cotang	Coverf	Secant	Diff	Cofine		
789320	1616	10 106580	9 3263138	89 8095	2604	10 1071902	9 5847139	10 1031679	987	9 89653	160	
795736	1616	10 104964	9 3266806	89 80702	2604	10 1069298	9 5844549	10 1035666	987	9 8964331	59	
796652	1614	10 103348	9 3270473	89 803306	603	10 1066694	9 5841957	10 1036654	988	9 8963346	58	
798266	1614	10 101734	9 3274137	89 8035909	2602	10 1064091	9 5839364	10 1037642	988	9 8962358	57	
799880	1613	10 100120	9 3277800	89 8038511	2603	10 1061489	9 5836771	10 1038631	989	9 8961369	56	
7991493	1611	10 2098507	9 3281461	89 8041114	2601	10 1058886	9 5834176	10 1039621	990	9 8960379	55	
7993104	1611	10 2096896	9 3285121	89 8043715	2602	10 1056285	9 5831581	10 1040611	990	9 8959389	54	
79904715	1610	10 2095285	9 3288778	89 8046317	2601	10 1053683	9 5828985	10 104160	991	9 8958398	53	
7990325	1608	10 2093675	9 3292431	89 8048918	2601	10 1051082	9 5826387	10 1042594	992	9 8957406	52	
79907933	1608	10 2092067	9 3296089	89 8051519	2600	10 1048481	9 5823789	10 1043586	992	9 8956414	51	
79909541	1607	10 2090459	9 3299741	89 8054119	2600	10 1045881	9 5821190	10 1044578	99	9 8955422	50	
79911148	1606	10 2088852	9 3303392	89 8056719	2600	10 1043281	9 5818589	10 1045571	993	9 8954429	49	
7991754	1605	10 2087246	9 3307041	89 8059319	2599	10 1040681	9 5815988	10 1046565	994	9 8953435	48	
79913359	1604	10 2085641	9 3310688	89 8061918	2599	10 103808	9 5813386	10 1047560	995	9 8952440	47	
79915963	1603	10 2084037	9 3314334	89 8064517	2599	10 1035483	9 5810783	10 1048555	995	9 8951445	46	
79917566	1603	10 2082434	9 3317978	89 8067116	2599	10 1032884	9 5808179	10 1049550	995	9 8950450	45	
79919168	1602	10 2080832	9 3321620	89 8069714	2598	10 1030286	9 5805574	10 105054	997	9 8949453	44	
79920769	1601	10 2079231	9 3325261	89 8072312	2598	10 1027688	9 5802968	10 1051543	996	9 8948457	43	
79922369	1600	10 2077631	9 3328900	89 8074910	2598	10 1025090	9 5800361	10 1052541	998	9 8947459	42	
79923968	1599	10 2076032	9 3332537	89 8077507	2597	10 1022493	9 5797753	10 1053539	998	9 8946461	41	
79925566	1598	10 2074434	9 3336172	89 8080104	597	10 1019896	9 5795144	10 1054537	998	9 8945463	40	
79927163	1597	10 2072837	9 3339806	89 8082700	2596	10 1017300	9 5792534	10 1055537	999	9 8944463	39	
79928760	1597	10 2071240	9 3343438	89 8085296	2596	10 1014704	9 5789923	10 1056536	999	9 8943464	38	
79930355	1595	10 2069645	9 3347068	89 8087892	2596	10 1012108	9 5787311	10 1057537	1001	9 8942463	37	
79931949	1594	10 2068051	9 3350697	89 8090487	2595	10 1009513	9 5784698	10 1058538	1001	9 8941462	36	
79933543	1592	10 2066457	9 3354323	89 8093082	2595	10 1006918	9 5782085	10 1059539	1003	9 8940461	35	
79935135	1592	10 2064865	9 3357949	89 8095677	2595	10 1004323	9 5779470	10 1060542	1003	9 8939458	34	
79936727	1590	10 2063273	9 336157	89 8098271	2594	10 1001729	9 5776854	10 1061544	1002	9 8938456	33	
79938317	1590	10 2061683	9 3365194	89 8090865	594	10 0999135	9 5774237	10 1062548	1001	9 8937452	32	
79939907	1589	10 2060093	9 3368814	89 8093459	2594	10 0996541	9 5771620	10 106355	1004	9 8936448	31	
79941496	1587	10 2058501	9 337243	89 8096052	2593	10 0993948	9 5769001	10 1064556	1001	9 8935441	30	
79943083	1587	10 2056917	9 3376049	89 8098645	2593	10 0991355	9 5766382	10 1065561	1005	9 8934439	29	
7994467	1586	10 2055330	9 3379664	89 8091231	2592	10 0988763	9 5763761	10 1066567	1006	9 8933433	28	
79946256	1586	10 2053744	9 3383278	89 8093830	2593	10 0986170	9 5761139	10 1067574	1007	9 8932426	27	
79947841	1585	10 2052159	9 3386889	89 8096422	2592	10 0983578	9 5758517	10 1068581	1001	9 8931419	26	
79949425	1584	10 2050575	9 3390499	89 8099013	591	10 0980987	9 5755893	10 1069588	1007	9 8930412	25	
79951008	1583	10 204899	9 3394107	89 8091604	591	10 0978396	9 5753269	10 1070596	1008	9 8929404	24	
79952590	1582	10 2047410	9 3397714	89 8094195	2591	10 0975805	9 5750643	10 1071605	1009	9 8928395	23	
79954171	1581	10 2045829	9 3401319	89 8096786	591	10 0973214	9 5748017	10 1072615	1010	9 8927385	22	
79955751	1580	10 2044249	9 3404922	89 8099376	2590	10 0970621	9 5745390	10 1073625	1010	9 8926375	21	
79957330	1579	10 2042670	9 3408524	89 8091966	590	10 0968034	9 5742761	10 1074635	1010	9 8925365	20	
79958909	1579	10 2041091	9 341214	89 8094555	2589	10 0965445	9 5740132	10 1075646	1011	9 8924354	19	
79960486	1577	10 2039511	9 3415722	89 8097141	589	10 0962856	9 5737502	10 1076658	1012	9 8923342	18	
79962062	1576	10 2037938	9 3419319	89 8099733	2589	10 0960267	9 5734870	10 1077671	1013	9 8922329	17	
79963638	1576	10 2036362	9 3422913	89 8092321	2588	10 0957679	9 5732238	10 1078684	1013	9 8921316	16	
79965212	1574	10 2034788	9 3426507	89 8094910	2589	10 0955090	9 5729605	10 1079697	1013	9 8920303	15	
79966786	1574	10 2033214	9 3430098	89 8097497	2587	10 0952503	9 5726970	10 1080711	1014	9 8919289	14	
79968359	1573	10 2031641	9 3433688	89 8095085	2588	10 0949915	9 5724335	10 1081726	1015	9 8918274	13	
79969930	1571	10 2030070	9 3437276	89 8097672	2587	10 0947328	9 5721699	10 1082742	1016	9 8917258	12	
79971501	1571	10 2028499	9 3440863	89 8095259	2587	10 0944741	9 571906	10 1083758	1016	9 8916242	11	
79973071	1570	10 2026929	9 3444448	89 8097845	2586	10 0942155	9 5716423	10 1084774	1016	9 8915226	10	
79974610	1569	10 2025360	9 3448031	89 8095431	586	10 0939569	9 5713781	10 1085792	1018	9 8914208	9	
79976208	1568	10 2023792	9 3451612	89 8098017	2586	10 0936983	9 5711141	10 1086809	1017	9 8913191	8	
79977775	1567	10 2022225	9 3455192	89 8095603	2586	10 0934397	9 5708503	10 1087828	1019	9 8912172	7	
79979341	1566	10 2020659	9 3458770	89 8098188	2585	10 0931812	9 5705861	10 1088847	1019	9 8911153	6	
79980906	1565	10 2019094	9 3462347	89 8095773	2585	10 0929227	9 5703218	10 1089867	1020	9 8910133	5	
79982470	1564	10 2017530	9 3465922	89 8097357	2584	10 0926643	9 5700573	10 1090887	1021	9 8909113	4	
79984034	1564	10 2015966	9 3469495	89 8095941	2584	10 0924059	9 5697928	10 1091908	1021	9 8908092	3	
79985596	1562	10 2014404	9 3473067	89 8098525	584	10 0921475	9 5695282	10 1092929	1021	9 8907071	2	
79987158	1562	10 2012842	9 3476637	89 8096109	584	10 0918891	9 5692635	10 1093951	1022	9 8906050	1	
79988718	1560	10 2011282	9 3480205	89 8098692	2583	10 0916308	9 5689987	10 1094974	1023	9 8905026		
Cofine	Diff	Secant	Coverf	Cotang	Diff	Tang	Verfedf	Cosec	Diff	Sine		

Deg

39 Deg		NATURAL SINES, &c								Tab. 10	
	Sine	Diff	Coverf	Cofec.	Tang	Cotang.	Secant	Verf.	Diff	Cofine	
0	6293204	2260	3706796	5890157	8097840	2348972	2867596	2228540	1831	7771460	60
1	6295464	2260	3704536	5884452	8102658	2341629	2870628	2230371	1832	7769629	59
2	6297724	2259	3702276	5878752	8107478	2334292	2873663	2232203	1832	7767797	58
3	6299983	2259	3700017	5873058	8112300	2326961	2876700	2234035	1833	7765965	57
4	6302242	2258	3697758	5867369	8117124	2319634	2879740	2235868	1834	7764132	56
5	6304500	2258	3695500	5861685	8121951	2312313	2882782	2237702	1834	7762298	55
6	6306758	2257	3693242	5856007	8126780	2304997	2885827	2239536	1835	7760464	54
7	6309015	2257	3690985	5850334	8131611	2297681	2888875	2241371	1835	7758629	53
8	6311272	2256	3688728	5844667	8136444	2290381	2891925	2243206	1837	7756791	52
9	6313528	2256	3686472	5839005	8141280	2283081	2894977	2245043	1836	7754957	51
10	6315784	2255	3684216	5833348	8146118	2275786	2898032	2246879	1838	7753121	50
11	6318039	2254	3681961	5827697	8150958	2268496	2901090	2248717	1838	7751283	49
12	6320293	2254	3679707	5822051	8155801	2261211	2904150	2250555	1839	7749445	48
13	6322547	2253	3677453	5816411	8160646	2253932	2907213	2252394	1839	7747606	47
14	6324800	2253	3675200	5810776	8165493	2246658	2910278	2254233	1841	7745767	46
15	6327053	2253	3672947	5805146	8170343	2239389	2913346	2256074	1840	7743926	45
16	6329306	2251	3670694	5799521	8175195	2232125	2916416	2257914	1842	7742086	44
17	6331557	2252	3668443	5793902	8180049	2224866	2919489	2259756	1842	7740244	43
18	6333809	2250	3666191	5788289	8184905	2217613	2922564	2261598	1843	7738402	42
19	6336059	2251	3663941	5782680	8189764	2210364	2925642	2263441	1843	7736559	41
20	6338310	2249	3661690	5777077	8194625	2203121	2928723	2265284	1844	7734716	40
21	6340559	2249	3659441	5771479	8199488	2195883	2931806	2267128	1844	7732872	39
22	6342808	2249	3657192	5765887	8204354	2188650	2934892	2268973	1845	7731027	38
23	6345057	2248	3654943	5760300	8209222	2181422	2937980	2270818	1845	7729182	37
24	6347305	2248	3652695	5754718	8214093	2174199	2941071	2272664	1846	7727336	36
25	6349553	2247	3650447	5749141	8218965	2166982	2944164	2274511	1847	7725489	35
26	6351800	2246	3648200	5743570	8223840	2159769	2947260	2276358	1848	7723642	34
27	6354046	2246	3645954	5738004	8228718	2152562	2950359	2278206	1849	7721794	33
28	6356294	2245	3643708	5732443	8233597	2145359	2953460	2280055	1849	7719945	32
29	6358537	2245	3641463	5726887	8238479	2138162	2956564	2281904	1850	7718096	31
30	6360782	2244	3639218	5721337	8243364	2130970	2959670	2283754	1851	7716246	30
31	6363026	2244	3636974	5715792	8248251	2123783	2962779	2285605	1851	7714395	29
32	6365270	2243	3634730	5710252	8253140	2116601	2965890	2287456	1852	7712544	28
33	6367513	2243	3632487	5704717	8258031	2109424	2969004	2289308	185	7710692	27
34	6369756	2242	3630244	5699188	8262925	2102252	2972121	2291160	1854	7708840	26
35	6371998	2242	3628002	5693664	8267821	2095085	2975240	2293014	1854	7706986	25
36	6374240	2241	3625760	5688145	8272719	2087924	2978362	2294868	1854	7705132	24
37	6376481	2240	3623519	5682631	8277620	2080767	2981487	2296722	1855	7703278	23
38	6378721	2240	3621279	5677123	8282523	2073615	2984614	2298577	1856	7701423	22
39	6380961	2240	3619039	5671619	8287429	2066468	2987743	2300433	1857	7699567	21
40	6383201	2240	3616799	5666121	8292337	2059327	2990876	2302290	1857	7697710	20
41	6385440	2239	3614560	5660628	8297247	2052190	2994011	2304147	1857	7695853	19
42	6387678	2238	3612322	5655141	8302160	2045058	2997148	2306004	1857	7693996	18
43	6389916	2238	3610084	5649658	8307075	2037932	3000288	2307863	1859	7692137	17
44	6392153	2237	3607847	5644181	8311992	2030810	3003431	2309722	1860	7690278	16
45	6394390	2236	3605610	5638708	8316914	2023693	3006576	2311582	1860	7688418	15
46	6396626	2236	3603374	5633241	8321834	2016581	3009724	2313442	1861	7686558	14
47	6398862	2235	3601138	5627779	8326759	2009475	3012875	2315303	1862	7684697	13
48	6401097	2235	3598903	5622322	8331686	2002373	3016028	2317165	1862	7682835	12
49	6403332	2234	3596668	5616871	8336615	1995276	3019184	2319027	1863	7680973	11
50	6405566	2233	3594434	5611424	8341547	1988184	3022343	2320890	1864	7679110	10
51	6407799	2233	3592201	5605982	8346481	1981097	3025504	2322754	1864	7677246	9
52	6410032	2233	3589968	5600546	8351418	1974015	3028667	2324618	1865	7675382	8
53	6412264	2232	3587736	5595115	8356357	1966938	3031834	2326483	1865	7673517	7
54	6414496	2232	3585504	5589689	8361298	1959866	3035003	2328348	1867	7671652	6
55	6416728	2230	3583272	5584268	8366242	1952799	3038175	2330215	1867	7669785	5
56	6418958	2231	3581042	5578852	8371188	1945736	3041349	2332082	1867	7667918	4
57	6421189	2229	3578811	5573441	8376136	1938679	3044526	2333949	1868	7666051	3
58	6423418	2229	3576582	5568035	8381087	1931626	3047706	2335817	1869	7664183	2
59	6425647	2229	3574353	5562634	8386041	1924579	3050888	2337686	1870	7662314	1
60	6427876		3572124	5557238	8390996	1917536	3054073	2339556		7660444	0
	Cofine	Diff.	Verf.	Secant	Cotan.	Tang.	Cofec.	Coverf	Diff	Sine	

